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An Address
ON THE
TRANSATLANTIC DEVELOPMENT OF RHINO-LARYNGOLOGY.

Being the Semon Lecture of the University of London, delivered at the Royal Society of Medicine on July 12th

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[Prof. Birkett commenced his address by expressing his appreciation of the honour conferred, not only on himself, but on the medical profession of Canada, and on McGill University in particular, by the invitation to deliver the Semon Lecture. He then paid a personal tribute to the memory of Sir Felix Semon, with whom he had a warm friendship, describing him as frank and decided in his opinions, and pre-eminent as a contributor to the literature of laryngology. Quoting from Dr. Bryson Delavan and Sir William Milligan, he said that it must be admitted that the most important developments of laryngology had originated and been developed in the United States. He continued:—]

HISTORY OF THE INTRODUCTION OF THE LARYNGOSCOPE.

In America the first knowledge of the nature and uses of the laryngoscope, introduced by Garcia in 1855, was communicated to the medical profession by Hugo Stangenwald, who, in a communication before the New York Medico-Chirurgical College on June 14th, 1860, read a description of the instrument. At a meeting of the New York Academy of Medicine, held on March 6th, 1861, Ernest Krackowizer made the statement that he "was the first person in America who had seen the vocal cords in a living subject," by means of a laryngoscope which he had received from Vienna in 1858. It is also recorded by Louis Elsberg that in 1858 Ephraim Cutter made an unsuccessful attempt to examine the larynx by means of prisms contained in a double tube, one tube being for illumination and the other for observation. Other early records of the examination of the larynx with the laryngoscope are to be found, such as that of Abraham Jacobi, who states, in his "History of Pediatrics in New York," that in 1856 he had a mirror made with which he examined the larynx of one of his patients. G. Troup Maxwell also claims in the *American Medical Record* to have had a laryngeal mirror made in 1859, with which he not only examined the larynx but carried out local treatment The statement is made by Jacobi and by Maxwell, individually, that they did not realise the importance of this particular discovery at the time, and only placed it on record many years after. In 1862 E. Wagner, of New York, published an article on Laryngoscopy and Rhinoscopy, which appeared in the *Oesterreische Zeitschrift für Praktische Heilkunde*, 1862, No. 5; and in November of the same year Louis Elsberg reviewed in the *American Medical Monthly* Czermak's essay "On the Practical Uses of the Laryngoscope." Whilst the practical use of the laryngoscope at this period was regarded with more or less scepticism, the possibilities of it were foreseen by one whom I think we might rightly describe as the Father of Laryngology, Horace Green, who, after the demonstration of the instrument in 1861, made the following statement: "If that instrument can be brought into general use, I am confident that the profession will be able to cure diseases which are now too frequently overlooked."[1]

Two Pioneers.

Green was born in 1802 of Revolutionary parentage. He graduated in medicine in 1834, and in 1836 he moved to New York, where he practised as a lung and throat specialist until his death (from tuberculosis) in 1866. He had visited the clinics of the French teachers, more particularly those of Trousseau and Belloc, and returned to New York full of enthusiasm for the possibilities of the laryngoscope. He was the first to devote himself exclusively to diseases of the respiratory tract. In addition to two notable papers, one in 1849 on "The Pathology and Treatment of Croup," and the other in 1852 on "The Surgical Treatment of Polypi of the Larynx and Œdema of the Glottis," Green had already published in 1846 a book entitled, "A Treatise on Diseases of the Air Passages, comprising an Inquiry into the History, Pathology, Causes and Treatment of those Affections of the Throat called Bronchitis, Chronic Laryngitis, Clergyman's Sore Throat, &c." The book reached a third edition. Certain statements made by the author, claiming priority in the making of topical applications to the larynx, were the cause of a very acrimonious and unpleasant discussion, the character and nature of which may be readily understood by referring to the articles which appeared in the *Boston Medical and Surgical Journal* of 1846–47. It was, however, according to Elsberg, definitely settled that "the name of Horace Green is inseparably and most honourably connected with the history of Topical Medication of the Larynx; and his methods and success will ever remain a brilliant monument of his intrepidity, perseverance, and skill."

Associated with Green in the development of transatlantic laryngology must be repeated the name of Louis Elsberg, whom Cohen described as "the most accomplished laryngologist in America." He was born in 1836, and graduated at Jefferson Medical College, Philadelphia, in 1857. More than anyone else Elsberg was active in drawing attention in America to the importance of the laryngoscope, and he contributed a large number of valuable scientific papers. Elsberg's attention had been attracted and his ardour stimulated by Czermak, who had sent him his book. These studies and observations he brought, in 1863, before the New York Academy of Medicine and the American Medical Association. He also invented many useful laryngological instruments, such as a brush, sponge carrier, porte-caustic, fumigation tube, and electropole.[2]

Elsberg, with a few others, notably F. H. Davis, of Chicago, founded the American Laryngological Association and was its first president.

The Tonsillotome.

Two important inventions of the tonsillotome should not be left unmentioned. We are indebted to Philip Syng Physick for the first introduction in 1828 of the tonsillotome. This instrument was originally used as a uvulatome, but under his direction the same idea was carried out on a larger scale and the instrument adapted for the removal of tonsils. In 1832, William B. Fahnestock, of Lancaster, Pennsylvania, invented a tonsillotome on the ring-knife principle, with a needle for drawing the tonsil out of its bed.

LARYNGOLOGICAL LITERATURE.

Before the introduction of the laryngoscope in America, the early medical literature contains passages in which diseases of the throat are described and treatment outlined. The earliest account of diseases of the throat was given by John Josselyn, in his work entitled "An Account of Two Voyages to New England," made during the years 1638 and 1663, in which he states that "they (the inhabitants) are troubled with a disease in the mouth and throat, which hath proved mortal to some in a very short time, and to Quinsies and Impostumations of the Almonds, and great distempers of cold."[3] Captain Morton, in his "New England Memorial," in 1650, draws attention to similar occurrences. The description given in both of these works corresponds with diphtheria. In 1736, William Douglas published an essay entitled "The Practical History of a New Epidemical Eruptive Miliary Fever, with an Angina Ulcusculosa, which Prevailed in Boston, New England, in the Years 1735 and 1736." This article also evidently describes an epidemic of diphtheria.

From this period onwards there is little record of throat conditions until 1771, when Samuel Bard published a very concise treatise on diphtheria under the title "An Enquiry into the Nature, Cause, and Cure of the Angina Suffocativa, or Sore Throat Distempers." Bard gives a very careful, accurate, and graphic description of what we now know to be diphtheria involving the skin, mucous membrane, and larynx. In 1774 this disease was again described by Jacob Ogden as "The Throat Distemper." Later, Christian F. Michaelis

wrote an exhaustive treatise on croup, and in 1787 a curious manuscript entitled "A Therapeutic Alphabet, or Pocket Dictionary of Medicine, Midwifery, and Surgery," was written by Matthew Wilson, a clergyman, who was born in Chester County, Pennsylvania, 1734, and died in 1790. This manuscript was never printed and is reviewed by S. A. Friedberg in the *Annals of Medical History* under the title of "Laryngology and Otology in Colonial Times" The prevalence and importance of the different laryngological and otological diseases at this time may be judged by the amount of space devoted to their description, and the epidemics which are here described were evidently diphtheria and quinsy. The earliest classical textbook of special interest to laryngology was the work produced by Samuel D. Gross entitled "A Practical Treatise on Foreign Bodies in the Air Passages," published by Blanchard and Lea, Philadelphia, in 1854. Gross was the first to show why foreign bodies more frequently find their way into the right bronchus, owing to the anatomical arrangement of the septum of the bifurcation of the trachea.

With the introduction of the laryngoscope the literature increased rapidly, Elsberg himself contributing a large number of papers. A monumental piece of work which he compiled is the "Bibliography of Laryngology" from the year 1809 to 1878, and from a perusal of this one may gather that America contributed a great deal of valuable work. In 1864 Elsberg published (William Wood and Co.) a little monograph on "Laryngeal Medication," the first trans-Atlantic work on (mirror) laryngology, and in the year following he published an essay on "The Surgical Treatment of Morbid Growths Within the Larynx," which won a prize presented by the American Medical Association. This classical work deals with the fatality of the affection and the modern triumph over it through the introduction of the laryngoscope, the operations heretofore practised and the surgical treatment of these affections at that time, and shows that "he quickly realised and took advantage of the possibilities of the laryngoscope, not only as a means of examining and operating upon the hitherto hidden larynx, but an easy and practical method for obtaining fresh pathological tissues for study.

"His interest in the study of this material was not merely for diagnostic purposes but a much broader interest: the origin and development of tumours. In this essay he describes in detail and illustrates the microscopical findings in a tumour removed from the larynx of a young woman, which, he said, was the largest one observed up to that time. With a lens that magnified but 200 times, we find him carefully studying unstained sections with the hope that he might throw some light upon one of the important questions of his time as well as our own—the histogenesis of tumours. He proved to his own satisfaction that the epithelium of the tumour studied arose from the differentiation of the so-called connective tissue corpuscles. Fourteen years later he is again at work on the same problem and reports his findings in an article entitled 'Microscopical Study of Papilloma of the Larynx.'[4] At this time more powerful lenses were available and stains for sections were in use, and he was quick to avail himself of them. This article shows that he had not only a deep interest in pathology but a detailed knowledge of the literature. We cannot to-day accept all his findings as true, yet they show us what manner of man he was. He, though a practitioner, was not afraid to attack so obscure and complicated a subject as the histogenesis of tumours, but brought to bear upon it a well-trained and analytical mind."*

Following Elsberg, J. Solis Cohen "began a long series of communications, which have done so much to establish the specialty of laryngology in America and to stimulate its steady advance for nearly 40 years."[5] In 1866 and 1867 Cohen gave very elaborate and detailed accounts of the method of using the laryngoscope, describing very accurately the instrument itself, the methods of illumination, and the anatomical structures to be seen. In connexion with this subject, the anatomy of the larynx, it is to be noted that in 1848 Joseph Leidy, professor of anatomy in the University of Pennsylvania, independently described the elastic membrane of the larynx, though after writing the article Leidy found that in 1845 Lauth had already described it.

It was in 1877 that J. Solis Cohen made an epochal advance in the surgery of the larynx when he performed total extirpation for adenoma-carcinoma of the larynx and adopted the method, original with him, of attaching the free end of the trachea to the skin in the middle of the neck.[6] The first complete treatise on diseases of the throat ever published, either in the United States or abroad, is that by J. Solis Cohen, published in 1872, "a classical production," says Delavan, "which for thorough comprehensiveness and originality, wide and well-digested clinical knowledge, gained by close and intelligent observation from an almost unlimited clinical experience, exhaustive acquaintance with the literature of the subject, and sound practical common sense, was pre-eminent for many years, and in the light of its time has never been surpassed." Clinton Wagner published a small book in 1884; E. Fletcher Ingals, a book embracing diseases of the chest, with those affecting the throat and the nasal cavities, in 1890; F. H. Bosworth, two large volumes on diseases of the nose and throat, in 1889; and E. L. Shurley, a book on diseases of the nose and throat, in 1900. Other valuable contributions to the literature of laryngology are those of Franklin H. Hooper, of Boston, concerning the tension of the vocal cords, and the anatomy and physiology of the recurrent laryngeal nerve, which appeared in the Transactions of the American Laryngological Association.

The earliest laryngeal conditions met with in practice were evidently growths either benign or malignant, and as early as 1852 Horace Green referred to them as follows: "Foreign growths have occurred in the opening of the air passages, in many instances, where their presence was neither suspected nor discovered; and, if the attention of the profession should by any means be directed to this subject, it will be found that the existence of polypus and other excrescences in these passages is an occurrence taking place much more frequently than has been supposed by medical practitioners." Again: "There remains not a doubt, that, in many instances, these morbid growths have existed unobserved during life, and, having proved suddenly fatal, have remained undetected after death."

Eminent Operators.

One must pass in brief review certain laryngeal work done by eminent surgeons who did much to advance the surgery of certain diseases of the larynx.

The first reference in American literature is to a case of papillomata of the vocal cords described in 1817 by John C. Cheeseman in a child dying without relief.[7]

In 1845, Horace Green removed a pedunculated tumour from the larynx by pressing the tongue down and thus bringing the epiglottis into view, and when the patient coughed the polyp was caught by a slender double hook and removed by a probe-pointed knife. Laryngo-fissure—or laryngotomy as it then was called—without tracheotomy for removal of laryngeal growths was first performed in America by Ephraim Cutter, of Boston, in 1866. Gurdon Buck, of New York, in 1851, however, performed laryngo-fissure with tracheotomy for an extensive intra-laryngeal growth, and as early as 1846 his thoughts were directed to means of relieving a condition of œdematous laryngitis, and in 1847 he began to practise scarifications of the œdematous edges of the glottis, as well as the epiglottis, which method he maintained was first independently introduced by him. For these and other advancements which he made in the surgery of this special region, and which were original, practical, and brilliant, he may rightly be regarded as a pioneer in intra-laryngeal surgery. In 1876 Lefferts was the first in America to recognise eversion of the laryngeal ventricles and to operate upon a case successfully by laryngo-fissure with tracheotomy; but Elsberg in 1882 reported that he had operated by the indirect method upon a patient with a similar condition as early as 1866.

* I am indebted to Dr. Lawrence J. Rhea, Associate Professor of Pathology, McGill University, for the above statement regarding Elsberg's pathology.

LARYNGOLOGICAL SOCIETIES, LECTURES, AND JOURNALS.

Special laryngological societies were first formed in America. The one first established was known as the New York Laryngological Society, and was founded on Oct. 13th, 1873, by Clinton Wagner. Its object was stated to be "the study of affections of the larynx, pharynx, and adjacent parts." This society, however, was soon merged into the Section of Laryngology of the New York Academy of Medicine. In 1878, at a meeting held in Buffalo, a number of physicians, who had identified themselves for some years past with laryngology, decided to form a National Association "for the Advancement of the Special Department of Surgery in which they were chiefly interested." As a result of this meeting the American Laryngological Association was founded, and the first official meeting was held in the City of New York on June 10th, 11th, and 12th of the following year, under the presidency of Louis Elsberg. In his presidential address the latter stated that in the autumn of 1861 he commenced lecturing on laryngology in the medical department of the City of New York University, that this was the first regular instruction given on this subject in America, and that two years later the medical faculty of the University established a laryngological clinic, which was the first public throat clinic in America, and perhaps in the world.[8] The first official teaching in laryngology was, according to records, inaugurated by J. Solis Cohen in Philadelphia in 1866, and by H. K. Oliver at the Harvard Medical School about the same time. The Metropolitan Throat Hospital of New York was established in 1874 by C. Wagner, Asch, and Lefferts. In 1875 the Harvard Medical School included laryngology in its curriculum, as also did the New York College of Physicians and Surgeons. In 1883 a special department for the treatment of diseases of the throat was opened in the New York Eye and Ear Infirmary, and from this time onwards clinics and chairs were established in various transatlantic universities.

The first journal devoted entirely to the specialty of laryngology was the *Archives of Laryngology*, edited by Louis Elsberg, J. Solis Cohen, Frederick I. Knight, and George M. Lefferts in 1880. This journal was a marvel of production, but, unfortunately, only lived to have four volumes published. Other admirable journals devoted to this specialty are: the *Annals of Otology, Rhinology, and Laryngology*, which was founded in 1892, and *The Laryngoscope*, founded in 1896. An interesting and original method of reporting progress in this science was that begun in 1874, in the *New York Medical Journal*, by George M. Lefferts, in a series of abstracts contributed from time to time.

PHOTOGRAPHY, INTUBATION, AND BRONCHOSCOPY.

Thomas R. French was the first to obtain *satisfactory* photographs of the larynx, in 1882, although Ephraim Cutter attempted to do so in 1865. Of French's work it has been said that it was a "triumph of ingenuity, skill, and persistence, which resulted in upsetting many of the ideas conceived, not only by the early investigators, but much also which had been advanced since the introduction of the laryngoscope."[9]

The most epoch-making advance in laryngology was made, I think, when Joseph O'Dwyer, without knowledge of the unsuccessful efforts of Bouchut in 1858, gave intubation to the profession. From the foundation of the New York Foundling Hospital in 1869 to the inception of O'Dwyer's experiments in 1880 not a single case of tracheotomy for croup recovered, and it was this failure of tracheotomy to give encouraging results which prompted him in 1880 to begin his long and tedious work, which culminated in 1885 in producing an intubation tube which has stood the test of time in overcoming not only the acute but also the chronic forms of stenosis of the larynx. Fully to appreciate his work one should read his presidential address on "The Evolution of Intubation."[10]

The subject of intubation brings us to an allied one. It seems, from O'Dwyer's work, that he would probably have originated the idea of bronchoscopy, for he had already recognised the inevitable disaster of a foreign body in a bronchus remaining unremoved, and had constructed a special tube with a thin wall and a calibre as large as possible, for the purpose of facilitating the expulsion of a foreign body in the trachea or in a bronchus. Those who did much to advance bronchoscopy in America, and who were the first to remove foreign bodies by this method, are A. Coolidge, junr., and E. Fletcher Ingals. Fletcher Ingals performed his operation on March 24th, 1904, and Coolidge his on May 12th of the same year. Ingals's contributions to the subject of bronchoscopy are numerous, and show intuitive knowledge and inventive skill, and to him is due the credit of being the first to make use of the distal method of illumination.[11] It is, however, to Chevalier Jackson that great credit must be given for the subsequent transatlantic development and perfecting of this recent art. Jackson produced the first book devoted entirely to the subject of bronchoscopy, which was published in 1907; his second book, a most extensive and comprehensive one, appeared in 1914.

RHINOLOGY.

Laryngology received its impetus at a comparatively early period through the introduction of the laryngoscope, yet its sister specialty, rhinology, in spite of the means then at its disposal, was considerably slower in its development, and it was only the large number of contributions to the literature of the subject by Americans which enabled it to make any encouraging advance on that continent. It is interesting to note that the importance of nasal respiration and the disastrous effects of mouth-breathing were first noted by a layman, George Catlin, and the results of his observations, after a very long period spent amongst the Indians of both North and South America, are contained in the book published by him as early as 1861.[12] Catlin also draws attention to the injurious effects of mouth-breathing in producing nasal polypi, quinsy, asthma, diseases of the lungs, and irregularity of the teeth.

Contributions to the early literature of rhinology consisted merely of the reporting of cases without any new theories being set forth. The correction of certain conditions of the nasal mucous membrane was attempted by Horace Green and his contemporaries, by the method of syringing the nasal passages, and the year 1866 saw the introduction of the nasal spray by J. Solis Cohen. This method was further improved by Thomas Rumbold during that year and perfected by the addition of compressed air in 1872 by Louis Sass.

The study of the diseases of the nose, which up to the year 1874 had been given but scant attention, received a great impulse from the work of Morris Asch, John N. MacKenzie, Bosworth, Clinton Wagner, Beverley Robinson, and Lefferts, whose chief efforts were directed towards the removal of obstructions to nasal respiration. They gave most of their attention to correcting chronic hypertrophy of the turbinated bodies, by means of the application of astringents or acids, the insufflation of powders, the introduction of cylindrical sponge-tents, of soft metal or medicated bougies, the galvano-cautery, or by the snare, introduced by Jarvis. The next step in removing nasal obstructions was directed to the correction of abnormal conditions of the septum. In 1878 J. Solis Cohen was the first to remove intranasal bony obstructions by means of the dental engine, and in 1879 D. H. Goodwillie introduced his multiple revolving knives, nasal drills, and burrs to attain the same object.

An improvement upon the methods then in vogue of correcting septal deviations by crushing methods, as devised by A. J. Steele or Asch, was brought out in 1882 when E. Fletcher Ingals first performed the operation of resection, which consisted in incising the mucous membrane, carefully reflecting it from the

underlying cartilage, then *removing the deviated portion*, replacing the flap and retaining it in position by sutures.[13] In 1887, Francke H. Bosworth introduced his nasal saw for the removal of spurs and ecchondroses. The name of John O. Roe will always stand out prominently for his brilliant and original methods in his work of correcting external nasal deformities.[14 15] In connexion with hay-fever, W. H. Daly was the first to call attention, in 1882, to the clinical connexion between hay-fever and nasal diseases. John O. Roe, in 1883, first explained the relation of cause and effect between hay-fever and nasal diseases through the correlation of the vaso-motor or the sympathetic nervous system, and pointed out the value of the galvano-cautery in the treatment of nasal disease. To John N. MacKenzie belongs the credit for having drawn the attention of the profession to the fact "that in the nose there exists a definite well-defined sensitive area, whose stimulation, either through a local pathological process, or through the action of an irritant introduced from without, is capable of producing an excitation which finds an expression in a reflex act, or in a series of reflected phenomena." MacKenzie began his investigations in 1879 and the results were published in 1883,[16] 14 years before Fleiss, whose investigations were published in 1897. Edgar Holden in 1867 drew attention to the sympathetic connexion between affections of the uterus and the pharynx and larynx.

Acute and chronic inflammatory conditions of the nasal accessory sinuses received but little attention in the earlier years of the specialty, and it was W. H. Daly who, in 1882, brought prominently before the medical profession affections involving especially the antrum, and he may justly be regarded as a founder of that surgical school of rhinology in America. Daly's work immediately excited further investigation into the subject of nasal accessory sinus disease, notably by J. H. Bryan. It was in 1893 that operative measures for the cure of chronic suppurative conditions of the antrum were placed on a definite basis through the operation introduced simultaneously by G. W. Caldwell of New York and by Luc of Paris.

THERAPEUTIC MEASURES.

A new epoch was born through the discovery of the anæsthetic properties of cocaine, when Carl Koller of New York, whilst pursuing his studies in Vienna and carrying out further investigations, made known his discovery at a meeting of the Ophthalmological Society at Heidelberg in September, 1884, and it was at his suggestion that it was tried in the field of rhinology and laryngology. An important use of this drug was first noted by Francke H. Bosworth, who, in 1884, drew attention to the practical value of the contractile power of cocaine when applied to the mucous membrane of the nasal cavity.

The next epoch-making event in therapeutic measures was the discovery made known in 1896 by W. H. Bates of New York, an oculist, of the value of extract of the suprarenal capsule as a hæmostatic from observations he had made two years previously. This discovery soon found its application as a valuable adjuvant in controlling bleeding, particularly in nasal operations. The active principle of suprarenal capsule was discovered in 1897 by John J. Abel and A. C. Crawford, and called by them epinephrin, and by Jokichi Takamine, who termed it adrenalin. The first publication on the clinical use of adrenalin in rhinology was written by Emil Mayer.

THE TEACHING OF RHINOLOGY AND LARYNGOLOGY.

Undergraduate Teaching.—The subjects of rhinology and laryngology have for many years been compulsory in the undergraduate medical curricula of most of our leading universities. The instruction, systematic as well as clinical, is usually given in the final year, and at the termination of the session an examination, both written and oral, is conducted by the head of the department and a minimum of 50 per cent. of the marks must be obtained. The provincial qualifying Boards of Canada, as well as the majority of the State licensing bodies of the United States, require that an examination shall be passed in these special subjects.

Post-graduate Teaching.—In the United States of America post-graduate teaching was first instituted in the city of New York in 1877, chiefly owing to the efforts of Bulkley, Satterthwaite, and Lefferts, who established regularly organised instruction in the Demilt Dispensary, the most important dispensary at that time. Once introduced, post-graduate teaching greatly assisted in advancing educational methods and in supplying a need which hitherto had not been met.

From this beginning it has greatly increased, so that at the present time some of the leading medical centres have their own separate and distinct post-graduate institutions in which excellent facilities and opportunities are afforded in this special line of work.

THE EDUCATION OF THE SPECIALIST.

In the United States a great deal of thought has been given to the question of the education of the specialist. A committee appointed to consider the matter has finally drawn up recommendations which have been adopted by the American Laryngological Association, the American Otological Society, the Section of Oto-Laryngology of the American Medical Association, the American Laryngological, Rhinological and Otological Society, and the Academy of Ophthalmology and Oto-Laryngology. Briefly, the recommendations are as follows:—

1. Students preparing for the practice of oto-laryngology must be graduates of a first-class (Class A)† medical school, and should have completed a year's service as resident officer in an approved general hospital.
2. The minimum training shall consist of 18 months' full-time work, one half of each day to be devoted to the clinical study of cases, the other half to the study of the fundamental sciences and to library work.
3. All this work must be on the basis of genuine graduate instruction, where the student does his work individually under proper supervision.
4. The work in the fundamental sciences must be carried out in well-equipped laboratories, such as exist in all first-class (Class A)† medical schools. The clinical work must be done in a suitably equipped and properly organised special out-patient department of a large general hospital or special hospital, the student serving as clinical assistant.
5. Upon the completion of the first year's fundamental training, the student should obtain a position as resident officer in a special hospital or in the special department of a general hospital.

The early transatlantic custom was to unite otology and ophthalmology, but with the development of laryngology all three specialties were in many instances combined, and even at the present day in many of the small centres it is not uncommon to find the four specialties being practised by one individual. But as far back as 1887 an attempt was made by W. H. Daly to dissociate laryngology and otology from ophthalmology, and to unite otology and laryngology in accordance with their natural affinities. This idea has been continued and for the past 20 years laryngology and otology have, in most medical schools, become united under one chair, although in some the two subjects are still taught from separate chairs.

CONCLUSION.

In looking back over the broad outlines of the history of the transatlantic development of rhino-laryngology, one cannot but be impressed by the amazing strides which have been made in this specialty, particularly during the past 70 years. Previously its possibilities of developing into an important and distinct department were not fully realised, but once the avenues of research and investigation were opened up in the light of modern scientific developments, one discovery followed fast upon another, each experience an arch wherethrough gleamed ever-widening fields of investigation. It was for the seekers of two generations ago to blaze the trail, whilst the succeeding generations have put into practice and brought to the present state of development the great ideas which had been set forth.

† According to the classification adopted by the educational committee of the Rockefeller Foundation.

I desire to express my warmest thanks to Dr. D. Bryson Delavan, of New York, Lieut.-Colonel F. H. Garrison, of the Surgeon-General's Library, Washington, and Dr. W. W. Francis, of Montreal, for their valuable assistance in the preparation of this paper; also to Miss Cameron and Miss Davidson of the Medical Library, McGill University, for their kind help in the research work.

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An Address

ON

CANCER OF THE LARYNX:

THE OPERATION OF LARYNGO-FISSURE AND ITS RESULTS IN THE INTRINSIC VARIETY.

Being a Communication made to a General Discussion at the Tenth International Congress of Otology, Paris, July 20th, 1922,

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Scope of Communication.—My contribution to this debate is limited to a consideration of the operation of laryngo-fissure, and the results I have obtained by it in intrinsic cancer of the larynx. The material of this article is composed from the full records of all patients operated on up to the end of the year 1921. The diagnosis has always been verified by the microscope, and the after-history of each case has been followed up to the present moment or until the patient's death. The cases have not been specially selected for operation with the object of producing a "record"; every patient who presented a prospect of lasting cure by laryngo-fissure was operated on; every one has been recorded in sequence; and it is hoped that this full report will help to a more ready adoption of the method and to still better results.

Amount of Material.—Up to the end of last year I had carried out laryngo-fissure for cancer of the larynx on 51 patients. That may not seem a large number; but intrinsic cancer of the larynx is not a common disease. Semon, with his extensive experience, only saw 136 cases in private practice in 28 years; his valuable pioneer work on the subject was based on only 24 cases of operation by laryngo-fissure. Butlin—who was the first to revive the operation after it had been discredited by the results of Billroth and Paul Bruns, and by the teaching of Morell Mackenzie—never published his statistics. The following record is the only statistic which has issued from the English school of laryngology since Semon published his 24 laryngo-fissures, and is also the largest. I only mention this so that junior colleagues may not think that 51 cases is a small number on which to base guiding principles.

STATISTICS.

Although I use the term "statistics" I do not base my conclusions on statistical grounds. We all know how misleading statistics may be, and particularly those in the practice of medicine. Butlin, in declining to publish his figures, was following the example of my own teacher Lister, who always resisted the clamour for statistics in pioneer work.[1]

[1] Sir Rickman Godlee: "Lord Lister," London, 1917, p. 322.

I give the majority of my results in the form of Tables and Figures, simply because it is a much quicker method of demonstrating experiences.

TABLE I.—*Cases Operated Upon by Laryngo-Fissure, 1900–21.*

—	Number of cases.	Private cases.	Hospital cases.	Age limits.
Male	45	38	7	44–75
Female	6	3	3	33–53
Total ..	51	41	10	—

TABLE II.—*Incidence, According to Age, of 51 Cases of Intrinsic Cancer of Larynx.*

—	Ages 21–30	31–40	41–50	51–60	61–70	Over 70
Male	0	0	12	20	10	3
Female	0	3	1	2	0	0
Total, both sexes	0	3	13	22	10	3

Affection of Cord.—In the 51 cases the right cord was affected 26 times, the left cord 25 times. The anterior commissure and part of the opposite cord were also invaded in five of these cases.

Preliminary Microscopic Examination.—Examination of a portion removed for diagnostic purposes was confirmatory in 12 cases and misleading in 2 cases. In the remaining 37 cases the growth was not suitable for the removal of a satisfactory portion. The diagnosis was therefore based on clinical symptoms only, but was confirmed by the pathologist after operation in every instance.

Interference with Mobility of Affected Cord.—The cord was immobile in 8 cases, movement was impaired in 14 cases, and in the remaining 29 cases movement was normal.

TABLE III.—*Thirty Cases of Intrinsic Cancer of the Larynx, Alive and Well, without Recurrence, after Laryngo-Fissure.*

Case No.	Age at op. in years.	Sex.	Time since op. in years.	Present age in years.	Case No.	Age at op. in years.	Sex.	Time since op. in years.	Present age in years.
6	59	M.	13	72	33	67	M.	5	72
11	48	M.	10	58	34	75	M.	5	80
12	53	F.	10	63	36	60	M.	4	64
13	58	M.	9	67	36*a*	70	M.	4	74
18	65	M.	8	73	37	69½	M.	4	73½
21	66½	M.	7	73½	38	40	F.	4	44
22	59	M.	6½	65½	39	63	M.	3½	67½
23	68	M.	6	74	41*	33	F.	3	36
25	72	M.	6	78	42	48	M.	2½	51
26	46	F.	6	52	43	54	M.	2½	57
27	57½	M.	6	63½	44	58	M.	2½	61
29	47½	M.	5½	53	45	35	F.	1½	37
30	67	M.	5½	72½	47	60	M.	1½	61
31	49½	M.	5½	55	48	51	M.	1½	52
32	54	M.	5	59	50	53	M.	¼	53½

* Three years after laryngo-fissure and two years after hemi-laryngectomy for a recurrence.

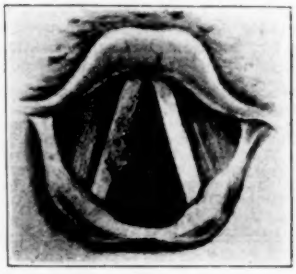
FIG. 1.

Epithelioma of vocal cord. Shows dimpling of growth. The cord moved freely. (Case 13.)

FIG. 2.

Epithelioma of the larynx. Shows a cupped growth which extended deeply into the subglottic space. The cord was quite fixed. (Case 24.)

FIG. 3.



Epithelioma of vocal cord, which also invades the subglottic space. The cord was quite fixed. (Case 31.)

The figures in Tables III. and IV., added together, show the after-history of 40 cases of laryngo-fissure, without any recurrence.

Local recurrence accounted for the death of only 8 out of the 51 cases.

TABLE IV.—*Eleven Deaths from Other Causes, without Recurrence.*

No. of case.	Cause of death.	Age at death.	Date after op. in years.
1	Cancer of left tongue, 16 mos. after op.	50	3
2	Laryngitis.	50½	1½
3	Tubercle.	58	10
4	Lost sight of.	?60	6
8	Aneurysm.	61½	3½
9	Bronchitis and emphysema.	74	6
10	Pneumonia.	60–?63	5–8
17	Cerebral hæmorrhage.	75	6 5/12
28	De veloped pleuro-pneumonia with fœtid empyema 1 mo. later. Operation; good recovery. Died 11 mos. after op.*	48	1
35	Cerebral hæmorrhage.	62	3 5/12
40	Operative hæmorrhage; morphia; pneumonia.	56	48 hours

* No details obtainable, but Logan Turner found no signs of recurrence two months before death.
mos. = Months.

TABLE V.—*Eight Deaths from Local Recurrence.*

No. of case.	Sex.	Date of onset after op.	Date of death after op.
4	M.	8 mos.	20 mos. and 12 mos. after total laryngectomy.
14	M.	3 yrs.	3 yrs. (heroin poisoning).
16	M.	2 mos.	5 mos.
19	M.	3 yrs.	4½ yrs.
20	M.	3 mos.	1 yr.
24	M.	1 mo. suspicion, and certain in 4 mos. Tracheotomy at end of 5 mos.	15 mos.
46	M.	2 mos.; declined laryngectomy.	11 mos.
49	M.	2 mos.	5 mos.

Cases 14, 16, and 20 were very alcoholic subjects.

Nos. 4 and 15 were both alcoholic and syphilitic. Nos. 19 and 29 were subglottic growths, with impaired mobility of cord. No. 46 was subglottic and cord was quite fixed. No. 49 was a heavy smoker and a whisky-drinker. One patient, a female aged 33, presented local recurrence within four months. A hemi-laryngectomy was performed, and she is alive and well after the lapse of two years. I have entered her in Table III. (No. 41).

Recurrence in Glands and Neck without Local Recurrence.—This recurrence accounted for two deaths. In one case (No. 15) the glands developed four months after laryngo-fissure, and in the other (No. 7) eight years after operation. The latter was an alcoholic and syphilitic.

One case (No. 22) developed recurrence in the glands one and a half years after laryngo-fissure. He was operated upon and is now alive and free from symptoms six and a half years after he had his larynx split and five years after the affected gland was removed. He is entered in Table III.

Operative Deaths.

Two patients of the 51 operated on died within 48 hours of the operation. The first case, No. 14, a very alcoholic subject, was successfully operated on in 1913. After three years' absence in India he returned with a local recurrence; a second laryngo-fissure passed off without untoward incident in 1916; but he died 48 hours later with drowsiness, contracted pupils, and complete suppression of urine. He had been given ¼ gr. of heroin, in three doses of ¼ gr. within 24 hours. One of these doses had not been ordered, but ¼ gr. was not a large dose. There was no hæmorrhage. A tracheotomy tube had, fortunately, been left in after operation. Death appeared to be due to an idiosyncrasy for heroin in a very alcoholic subject. The second case, No. 40, had suffered from syphilis of the larynx for four years before a subglottic intrinsic cancer developed. There was much bleeding at the operation and a recurrence within two hours. Through a misunderstanding more morphia was given than was intended—viz., ¾ gr.—and he died with symptoms of septic pneumonia within 48 hours of the operation. A tracheotomy tube had been left *in situ*, on account of the free bleeding at operation, the subglottic extension of the disease, and the syphilitic basis.

I hardly think that in either case the fatality can be attributed directly to the operation. Both were very unpromising subjects, but, still, death might have been avoided if no soporific had been given. I now refuse to give an opiate before or after operation.

Final Results.

Recollecting that we are dealing with an internal region of the body it is no little satisfaction to note that out of 51 cases, 30 are free from recurrence and alive at periods varying from one to 13 years. Eleven survived from various periods up to 10 years and died of other diseases. To account in this way for 41 out of the 51 cases is the more satisfactory when we recollect that this is a disease of advanced life; that the greater number of cases present themselves after months or years of neglected hoarseness and so must be regarded as advanced chordal cases; that many of them are unpromising subjects for operation; that the operation is comparatively new; and that technical experience in it is gathered by slow and anxious experience.

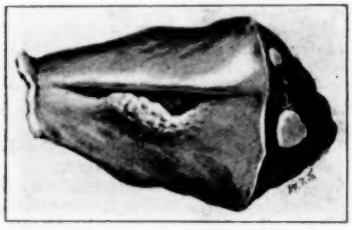
A selected or limited record might be made to compose a striking and far more satisfactory picture. If the 10 cases numbered 29 to 37 are taken, one patient only (No. 35) is dead, and she died from

cerebral hæmorrhage free from any suspicion of recurrence three and a half years after operation. The other nine cases are alive and well, and between 4 and 5½ years have elapsed since the operation, when their ages varied from 47½ to 75. To-day the youngest is 53, four of them are over 72, and one is 80 years of age. These 10 cases, taken *en suite*, show, after 3½ to 5 years, a freedom from recurrence in 100 per cent.

CLASSIFICATION AND PROGNOSIS.

In a recent number of the *Annales des Maladies de l'Oreille* (February, 1922) I suggested that the usual classification of cases of cancer of the larynx into extrinsic and intrinsic should be extended by dividing the intrinsic group into (*a*) chordal, and (*b*) subglottic cases. A consideration of the latter I must reserve for a future communication, but I would now point out that of my 51 cases, 14 were primarily or principally in the subglottic area. Of these 14, not less than five are dead from local recurrence, and one (still alive) had a recurrence in the glands. All these five had fixation or impaired mobility of the cord—a much more frequent proportion than when the neoplasm is limited to the vocal cord. The prognosis is, therefore, much worse in the subglottic type and when the cord is fixed or impaired in movement.

FIG. 4.



The epthelioma on the right vocal cord, with surrounding tissues, removed by laryngo-fissure. The illustration shows that anteriorly the fissure passed a little to the left of the middle line. Posteriorly the excision includes a good portion of the arytenoid, and the cartilage is well seen. Above, the excision goes well up on the ventricular band, and below it extends well down to the subglottic area. (Case 52.)

But the subglottic situation and the paretic cord do not necessarily contra-indicate the operation of laryngo-fissure. A British admiral has been gallant enough to come here to-day so that you may hear his voice and see his condition, free from any suspicion of disease 5½ years after the operation for laryngo-fissure (No. 31). He had been husky for 1½ years when we met on a Havre steamer in 1917, during the war. He had an immobile cord. A growth invaded the cord, the subglottic region, and the thyroid cartilage—as shown in the drawings of the tissues removed. Yet, after 5½ years, he enjoys excellent health and can talk to you in very good French!

CONCLUSION.

This 21 years' experience with the operation of laryngo-fissure confirms me in the conclusion I have formed from earlier and less extensive opportunities.[1] If cancer is limited to a vocal cord and is operated on with every care, we have, in laryngo-fissure, a procedure which is safe in execution and certain in its results. The operative death-rate should be nil, a serviceable voice can be promised, and there is every prospect of permanent freedom from recurrence. We may be gratified at helping to establish an operation which secures more striking and lasting results than can be hoped for with cancer in any other internal region of the body. To secure more such results the only other necessity is early diagnosis.

[The technique of laryngo-fissure was illustrated by a lantern demonstration.]

[1] Intrinsic Cancer of the Larynx; Operation by Laryngo-fissure; lasting cure in 80 per cent. of cases, Brit. Med. Jour., Feb. 17th, 1912, p. 355. Intrinsic Cancer of the Larynx: Operation by Laryngo-fissure and its Results, Trans. Med. Soc. Lond., 1919, vol. xlii. p. 105.

THE CHRONIC APPENDIX AND RECURRENT ABDOMINAL PAIN.

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IN all painful conditions of the abdomen for which relief is sought it is advisable to think of the appendix as a possible cause, for the large proportion of them are dependent upon disease of that part of the intestinal canal. The acute appendix has forced itself so insistently on the attention of the profession during recent years that its manifestations have received special recognition, and experts have made attempts, not without success, to differentiate from the symptoms and local signs the pathological state of the appendix in each case when it is first seen. It is not possible to come to a correct conclusion in every instance, nor can one name the exact cause of the symptoms in all acute abdominal catastrophes. It is therefore advisable to bear in mind the other diseases which produce the acute abdomen, especially when the attack is a primary one. Later if the illness recurs, it is not so difficult to form a correct opinion when the details of the previous history are given by a skilled observer. During all attacks it is of essential importance to come to a conclusion early as to the necessity (or not) for operation; fatal cases of postponed operation due to a mistake as to the nature of the case or the power of individual resistance are still only too frequently reported.

Although the primary attacks which are given in the history of patients in which operation was probably not performed must be considered to some extent, the object of this communication, which is made to comply with a request of some standing, is to give consideration to the more chronic manifestations of the painful affections of the abdomen dependent so frequently on changes in the appendix.

Types of Painful Abdominal Attacks.

Painful abdominal attacks may be divided as follows with the view of assisting the diagnosis:—

(A) 1. Recurring attacks of pain accompanied by pyrexia, but without the formation of any swelling which can be felt by ordinary examination.

2. Recurring attacks of pain which are accompanied by pyrexia and the formation of a swelling, either on the right side of the abdomen or in the pelvis.

3. Those cases in which there is a history of recurring pains, often severe, usually of short duration, but in which no rise of temperature, formation of swelling, or other localising sign has been observed.

4. Attacks of pain accompanying the formation of some tumour in the iliac fossa, but in which there is no history of pyrexia.

5. Cases of left-sided abdominal pain.

(B) Cases of latent disease of the appendix in which some illness due to this is not attributed to its correct source.

It is not necessary to recapitulate the symptoms of an attack of appendicitis; the usual onset is acute pain in the iliac region from the first or passing across to that part after commencing in the epigastrium. With this pain there is vomiting and pyrexia. Locally resistance to pressure with rigidity most marked over the appendix region, with some abdominal distension before the case has progressed far, and swelling. The average attack does not show a high temperature, and the patient recovers in a few days.

Where a mistake is occasionally made in diagnosis is in failing to recognise that the local signs will vary from the iliac type, according to the position of the appendix. The pain may begin in the back, commence and continue in the subhepatic region, or commence in the umbilical region, and only move lower down towards the pelvis when the appendix is situated in the pelvis.

It may be difficult some weeks after an attack to obtain an account which is dependable as to the

local signs which were present. The patient may remember there was tenderness when he was examined, but cannot say if any swelling was found; he did not notice it, and the medical man did not say anything. Careful examination should usually find it, but it is not present on the first day excepting where the attack is a recurrent one and permanent changes are already there. It is unusual to get a history of swelling when the appendix is pelvic in position.

It is often advisable to question young people without the presence of their parents. They are afraid of confessing that they have had attacks of pain before the illness which has caused alarm; often such have been regarded as stomach-aches, and no information of them escaped from the nursery, or the illnesses have occurred at school, and been treated by the matron of the house without reference to the medical officer. Recovery followed the administration of castor oil, so they could not have been serious! Besides they often had them and they were not very bad! Sometimes the child is contradicted by the parent when admitting the fact that he has had abdominal pains.

It will be sufficient for our purpose if a simple enumeration of the principal acute abdominal illnesses which have been mistaken for appendicitis, if only for a short time, is made. The history given in many chronic conditions has to be critically analysed.

In a previous contribution[1] to this subject those diseases which resemble appendicitis closely in their early stages were grouped as follows:—

(*a*) Thoracic.—Those having their origin above the diaphragm. Acute inflammation of the lower part of the pleura and of the lungs. During the early stage of an attack of pneumonia abdominal symptoms sometimes simulate those of acute peritonitis very closely. If there is an epidemic it may be advisable to delay giving an opinion for a short time on the chance of the development of some local sign in the lung. In children a diagnosis may be impossible because of their want of control and expressions of pain under any kind of examination when ill. In adults it is easier to come to a conclusion; the temperature may be unusually high for an attack of appendicitis. The usual careful examination for rigidity, local tenderness, swelling, and the presence of free fluid in the peritoneum, followed by pelvic examination per rectum or per vaginam should be made. Direct thoracic signs[2] are often almost entirely lacking for 24 hours or more.

(*b*) Abdominal.—Constipation,[3] acute indigestion,[3] intestinal obstructions, intussusception,[3] obstruction by band,[3] volvulus. Enteritis, gastro-enteritis, mucous colitis. Perforations of gastric, duodenal (the fact that fluid escaping from this position flows down to the right iliac fossa has frequently caused a mistake in the diagnosis), tuberculous, stercoral, and other ulcers of unknown origin (Dr. C. W. Hutt has observed them in both large and small gut of children). Perforations produced by foreign bodies. Inflammations of various diverticula, peritonitis[4] of hæmatogenous origin (most commonly the pneumococcus, in which a localised swelling to the right of Douglas's pouch has been found early in the case). Rupture of intra-peritoneal abscess originating in the pelvis. Salpingitis, pyosalpinx, extra-uterine gestation; rupture of ovarian cyst, or torsion of its pedicle.

Torsion of pedicle of subperitoneal fibroid; acute necrosis of uterine fibroid. Biliary colic, acute cholecystitis, and perforation of gall-bladder. Acute pancreatitis. Calculous affections of kidney and ureter, movable kidney producing Dietl's crises. Cross transference of pain from the left kidney. Acute coli infection of kidney.

General diseases, hysteria; angeioneurotic œdema; Henoch's purpura; malaria; abdominal influenza; lead colic; the crises of tabes dorsalis; typhoid fever[5]; ptomaine poisoning.

Rupture of rectus abdominis[6] by coughing during lung inflammation in a child. Rupture of tænia muscularis of cæcum from over-distension secondary to obstruction, either from adhesions or growth.

Disease of the hip-joint.

Ascarides in the appendix produce a typical appendix attack with high fever and local signs. The effect of round worms is less evident, but in one instance where a normal appendix was removed during an acute attack a round worm was passed per rectum a few hours later.

The diagnosis becomes easier the later the case comes for examination, and great help is given by the description of an attack given by a careful observer.

(*A*) *Various Forms of Recurrent Pain.*—1. When the patient is seen after one or more attacks of abdominal pain accompanied by pyrexia, but without the formation of any swelling which could be felt. These may be spoken of variously as "bilious attacks," "gastric catarrh," "gout in the stomach," "chill on the stomach," "gripes," "gastric fever," "dilated stomach." Here the question of abdominal influenza arises, and one has seen instances where the correctness of the diagnosis has only been questioned after repeated attacks of pelvic appendicitis.

Tuberculosis of the intestine and peritoneum is not always a painful condition, but if there be stricturing of the small gut, especially if the strictures are multiple, much suffering may be experienced, whilst the local signs may be few, if any. The history of a previous or accompanying lesion of tuberculous nature, with loss of flesh, night-sweats, and some pyrexia may give the clue to the nature of the colic. Appendicitis may be the main disease and tuberculosis latent.

Renal Affections.—Early hydronephrosis with dropped kidney, tubercle of the kidney, ureteritis and calculus of the ureter. The presence of blood[7] in the urine has been noted in a limited number of cases of appendicitis. This was caused by direct extension of inflammation to the ureter.

Bacillus Coli Infection of the Right Kidney.—This will cause pains of considerable severity in the iliac region and towards the pelvis with fever. An examination of the urine should always be made, but occasionally a muddy complexion, dry and dirty tongue, with foul breath, will indicate that there is more than an ordinary chronic appendicitis affecting the patient. A history of more than one rigor should be regarded as important. A case of calculus of the left kidney producing symptoms of recurring right-sided appendicitis is described elsewhere.[8] Various affections of the intestines produce recurring pains in the cæcal region. Dr. S. René Bonnet[9] drew attention to the value in such cases of the presence of mucous casts as an aid in the diagnosis of muco-membranous enterocolitis. The iliac pains of colitis, typhlitis, and perityphlitis (independent of appendix disease). Colicky pains occur in dysentery and during the course of typhoid fever. In children pyelitis of the right kidney and the vomiting of acidosis are specially mentioned by Dr. Fraser[10] as liable to be mistaken for appendicitis.

An inflammation of Meckel's diverticulum may recur, or symptoms associated with a sigmoiditis on the right side when the bowel is displaced. In this group not only is it necessary to enable one to come to a correct diagnosis to inquire regarding frequency of the attacks, but information should be obtained as to the exact spot where the pain commenced, its severity and duration, and whether it remained constant in position. A careful examination should be made with the abdominal wall relaxed, in some cases vaginal or rectal examination, and when possible in all the X rays employed.

[1] Battle: The Acute Abdomen, second edition, p. 110.
[2] Barnard: THE LANCET, vol. ii., 1902. See also Russell: Reports of the West London Medico-Chirurgical Society.
[3] These may be accompanied by rise of temperature in children.
[4] Battle: The Acute Abdomen, second edition, p. 90.
[5] Broca described two typical cases in children: THE LANCET, 1906, vol. i., p. 1586.
[6] Carson: Clin. Journ. 1913.
[7] Carless: THE LANCET, vol. ii., 1909, p. 1540. Frisch: Brit. Med. Jour., vol. i., 1912, Epitome, p. 58.
[8] Battle: The Acute Abdomen, p. 115, second edition.
[9] THE LANCET, 1907, vol. i., p. 1427.
[10] Brit. Med. Jour., 1922, vol. i., p. 175.

2. Recurring attacks of abdominal pain which are accompanied (or followed) by pyrexia and the formation of a swelling either on the right side of the abdomen or in the pelvis. The swellings, which may be found in the iliac fossa in cases of this group vary considerably. A chronic thickened appendix may be defined, rolls away under pressure, and the patient tells you that it is tender. More frequently the outer edge of the rectus is mistaken for it. A mucocele may attain a large size and have a definite outline, but cannot always be distinguished from a local abscess or enlarged and tuberculous gland at the ileo-cæcal angle, unless there is a history to show how long it has been forming. The question of dullness on percussion does not need discussion in chronic cases, but in early stages of an acute attack there may be diminished resonance in the iliac fossa, and within a few hours signs of free fluid in the peritoneum. New growth of the appendix usually gives no other symptom than those usual in obstructive appendicitis. Actinomycosis develops a mass, mostly mistaken for chronic abscess, and is not recognised until the appearance of the discharge (following incision) suggests the nature of the case and it is submitted to microscopical examination.

In cases of chronic obstruction of the large bowel the appendix may become dilated to the size of a big toe, but this gives no signs by which it can be recognised, and it does not rupture. This dilatation may be preceded by complaints of pain over the ascending colon and cæcum.

Torsion of the Great Omentum.[11]—This rare condition, which in some produces recurring attacks of pain in the right iliac fossa, may closely resemble appendicitis. The first attack may have been a severe one, or no attack may have compelled the patient to go to bed. The symptoms are caused by a twist of the omentum varying much in extent, but nearly always associated with irreducible inguinal hernia. When there is no hernia present the diagnosis becomes more difficult, there being local pain, tenderness with muscular rigidity, a rise of temperature, and a swelling in the iliac fossa. This swelling is produced by the congested or inflamed omentum. Exudation of fluid may increase the resemblance to appendix abscess. In the more severe cases localised gangrene has been associated with suppuration. It has been met with in umbilical and ventral hernia.

Hyperplastic tuberculosis of the cæcum is mostly discovered during an operation for symptoms caused by involvement of the appendix. Although tubercle of the peritoneum and bowel is often seen in abdominal explorations, it is seldom that the appendix is primarily affected. The swelling in hyperplastic tubercle is not commonly felt, or, if felt, ascribed to its exact cause before the abdomen is opened, although it occupies the iliac fossa. It sometimes causes pain by obstructing the valve, frequently it is the only evidence of tubercle.

Renal affections may cause painful attacks, with fever and a tumour on the right side, especially if the kidney has dropped to a marked degree. Hydronephrosis, pyelitis, and bacillary infection will occur to most, and should not cause difficulty.

Inflammations of the Pelvic Organs.—The symptoms resemble mostly those of an appendix which is pelvic in position. In a series of cases published by Sir F. Treves,[12] nine patients gave evidence of continued trouble after appendicectomy for chronic disease due to mischief in the right ovary, which had probably been overlooked at the operation. In some it was inflamed, prolapsed, and adherent, secondarily to the inflammation of the appendix. It is a rule from which there should be no departure that the condition of the pelvic organs be ascertained in all instances of removal of the appendix. The day of the keyhole incision has long passed away, but I am not sure that the large incisions which are employed by some do not err in the opposite direction when made without reference to the structure of the abdominal wall. If the ovary gives signs of disease, is prolapsed and adherent, then it should be removed. Early cystic change is not uncommon, but unless these cysts are inflamed, bound down by adhesions, are suppurating, or have their circulation obstructed by a twisted pedicle, it is unlikely that they are the cause of any pain which the patient may have experienced. Still it is necessary to deal with them, and in the early stage a partial removal of ovary may be sufficient. Suppuration in these cysts is probably due to infection from the appendix. Pyosalpinx (infective) is not uncommon, the tuberculous form is rare, but on one occasion in a girl sent under the care of a colleague as typhoid fever, removal of such a tube effected a cure. There had been continued fever, with sweatings and emaciation. No tubercle could be found in other parts, and recovery was lasting.

Hepatic colic, with blocking of a duct by a gall-stone, will cause vomiting and pain in the upper abdomen. A distended gall-bladder may usually be felt below the ribs in the nipple line, moving with respiration. In the high appendix any tumour which forms will usually be lower down, less definite in outline, and fixed. In a fat patient the swelling would be difficult to define in either case, but the tenderness is higher up in distended gall-bladder and nearer the surface. A chronic appendix may coexist with gall-stones, and it should be noted that jaundice may accompany painful attacks due to a subhepatic appendicitis, still even when both coexist the symptoms may be quite clear. When shoulder pain and pain in the back are experienced there is little doubt about an affection of the biliary apparatus. Occasionally the presence of hyperalgesia may have been noted in the right hypochondriac region.

The importance of coming to a conclusion as to the nature of any abdominal attack is evident, for a very slight one may be followed by a fulminating one. Even if that be the fate of an unhappy individual, and he escapes with his life after intraperitoneal suppuration and its complications, he may be left with such an amount of intraperitoneal adhesions that his life is a misery. Perhaps there may be a protrusion through some incision where it was necessary to insert a drain. An appendix which has once given rise to an attack will probably cause others, but no one can foretell what will be the nature of the illness nor when it will develop. In only three instances have appendices been found amongst my cases which were apparently normal after definite attacks, and in one of these there were proofs of former inflammation in the shape of a contracted meso-appendix and peritoneal adhesion. It is extraordinary to find some patients submitting year after year or month after month to typical attacks, with indifferent health in between. One man gave a history spread over a period of 20 years. He stated that during the first attack an incision was made in the iliac region for supposed suppuration. No pus was found and the appendix was not removed. This illness was followed by repeated attacks, sometimes severe, every few months. Ultimately he was admitted to St. Thomas's Hospital for an iliac abscess, the pus of which was evacuated. Later a strictured and very adherent appendix was excised, and he had no more trouble. It would be possible to publish many somewhat similar cases. On the other hand, I have seen a man die from acute suppurative peritonitis because his medical man would not sanction "interval" operation when he had recovered from his first attack. He was told it was unnecessary.

Bilious Attacks.—It is the experience of most surgeons that the condition of the appendix in an operation for acute disease frequently gives proof of some change which must have commenced long before the attack which has necessitated urgent intervention; yet there may be no history of previous abdominal illness obtainable. In other instances it may be admitted that a child did have bouts of sickness, with pain and fever, but they were only "bilious attacks"—a term much used by parents whilst children are in the nursery,

[11] Corner and Pinches: St. Thomas's Hospital Reports, 1904, p. 436. [12] Brit. Med. Jour., 1905, vol. i., p. 457.

and even later in life. These attacks may be those of unrecognised appendicitis and often prove to be such, although the name is gladly accepted as indicating a childish ailment of little importance and a peculiarity of the individual. Unfortunately, the parents are not able to gauge the relative danger of a particular illness, and the child who is ill cannot appreciate the increased severity of an attack. It not infrequently happens that surgical aid is sought when it is too late. Amongst the cases which were under my care there has been a preponderance of females, and history was given of many years' suffering before some particular sign, such as tenderness over the appendix, rigidity of muscle, or localised swelling was noted. Four patients said they had suffered for many years. Others were more definite, naming 1, 5, 7, 10, 13, and even 20 years of suffering. One patient became better after an abdominal abscess, whilst in others one or more attacks of definite appendicitis which were recognised gave ultimately the key to the cause of the repeated illness. It is a painful experience to be sent for too late in an acute attack with generalised peritonitis when the parents of a child think there is only a severe bilious attack, and the medical man has only just been called in.

One often sees *enlarged mesenteric glands* during an abdominal operation in children. Those in the ileocæcal angle show a special liability to disease but, as a rule, even if evidently tuberculous, they should not be excised. They are difficult to turn out of their bed, being adherent to overlying peritoneum and to important vessels which readily tear. Occasionally these patients present a definite group of symptoms which have been described by Mr. H. W. Carson.[13]

> "The patient is rather undeveloped for his years, giving the impression that he is not gaining weight and strength normally. The parents say that he has never been strong, and that since the symptoms began he has decidedly gone back. He is anæmic, rather thin, and often listless in manner. He does not play with other boys and often complains of feeling unwell. . . . Constipation is not the rule. The appetite is poor and the tongue furred. Flatulence has been complained of in many instances. One patient had frequency of micturition. There have been only a few cases of small rises of temperature, 99°–100° F., and the pulse is only quick when the child is in pain. . . . But the main symptom is pain and its character is absolutely typical. . . . It is a sudden centralised abdominal pain, severe enough to make the child cry, lasting for about 15 minutes or less, relieved by pressure and hot applications, recurring perhaps two or three times a day and stopping as suddenly as it begins, so that in the intervals the patient is quite free. In some cases the pains occur every day, in others only at intervals of a month or so, the attack lasting two or three days. Vomiting occurred at the time of the pain in 13 of the 39 typical cases. . . . It is of colicky nature and relieved by pressure and heat."

It is not often necessary to remove the glands, but it has been done with advantage.

Caseating and calcareous glands will be shown by the X rays. They may form a large mass in the ileocæcal angle and occasionally suppurate. A sharp appendix inflammation may bring the case to the doctor for the first time.

3. Cases in which there was a complaint of recurring pains in the abdomen, often severe, usually of short duration, but accompanying which there is no record of elevation of temperature, or of the formation of tumour.

his group may be divided into others, but it is not advisable to elaborate too much. In the diagnosis we must consider the referred pains of disease of bones and joints, especially the referred pain of caries and new growths (chiefly secondary) of the spine. The occasional nipping of an imperfectly descended testis in the internal ring of children. In the adult the involvement of intestine in an inguinal sac on the right side—this will cause a sudden attack of pain with or without vomiting. If a portion of gut is held in the ring the medical attendant will feel it. Should the ring be empty on examination it will be tender.

[13] Trans. Med. Soc. Lond., vol. xli.

The abdominal pains of locomotor ataxy and lead colic[14] must be remembered. In the gastric crises of locomotor ataxy the pain is considerable and the vomiting incessant. The Argyll-Robertson pupils and loss of knee-jerks will give the needful warning.

The pain in lead colic may be severe, is often paroxysmal, frequently unilateral, and the patient very restless. Contrary to the condition of patients in acute abdominal diseases, he may be found walking about. Vomiting may be severe. The usual evidence of lead poisoning will be present.

Simple Hypertrophy of the Appendix.—In a case already published,[15] that of a boy of 15, attacks of pain had been a source of distress to him every few weeks, after the age of 4 years. An appendix measuring 8 inches in length without signs of inflammatory change was removed.

The behaviour of a foreign body in the appendix varies very much according to its nature. When hard and pointed, the attacks induced may be very acute, whilst in others a recurring pain, especially after exertion, may be the chief complaint, without any accompanying fever. If a patient has a large concretion in the appendix, a ride on a motor-cycle or car over a shaky road may easily induce an acute gangrenous appendicitis.

Adhesions [16] about the cæcum and appendix as a result of appendicitis are common and are found in more than 60 per cent. at operation. They may also form after an interval operation, but this is unusual if no irritating antiseptic is used by the operator. The pain may be very severe, necessitating the use of morphia, or comparatively slight and only on exertion, such as that involved in playing tennis, dancing, &c. A sudden and unexpected jar may cure by breaking a slight band. In adhesion of omentum to the appendix site, or its involvement in the wound during closure, the pains may be more those of gastric disturbance.

Lane's kink (ileal) produces symptoms of obstruction and intestinal stasis. Pain is almost always present and referred to the right side of the abdomen. It may be acute with or without vomiting, but is never referred to the epigastrium, or diffused over the abdomen as in appendicitis. Tenderness is commonly found in the iliac fossa and in many there is a feeling of distension. There is no rise of temperature. It is comparatively rare.

Impacted calculus in the ureter will be shown if the routine examination by the X rays is made. A chronic appendix may coexist with this.

Amongst the members of this group there were many who applied for relief, and in none were there other symptoms or local signs to prove the origin of the pain; no fever, no swelling in the region of the appendix which could be felt, no local tenderness, not even a temporary local rigidity of muscle during an attack. The pain was referred to the right lower abdomen in most, some were more definite in localising it to the site of the appendix. The character of the pain varied, some said it was like "toothache," "aching," like "hand grasping," severe "shaking," "colicky," "burning," &c., rarely had there been vomiting during the attacks. The free intervals varied, in some pain was worse before the periods, in others on exertion such as dancing. In some there had been attacks during a term of years which they could not state, whilst others named from 1 year to 11. The average appeared to be somewhat over three years—but some spoke vaguely of months. The majority found it necessary to rest for a few minutes, when the pain would pass off, in others it lasted for a few hours and they had to go to bed. Seldom until the attack had recurred many times did they consult a medical man; occasionally much medicine had been taken without relief. One had recently been to a well-known spa for some weeks, but the pain returned when she reached home. Another had been put to bed for five weeks but was not benefited. In one the

[14] A. E. Russell: Trans. W. Lond. Med.-Chir. Soc.
[15] Battle and Corner: The Surgery of the Appendix Vermiformis and its Complications, second edition.
[16] THE LANCET, 1921, i., p. 313.

uterus had been removed, she stated, without relief. Some of these patients had suffered from other illnesses, one always had an erythematous eruption following the attack, one an attack of herpes, one had recently had pleurisy, another two attacks of pneumonia. In ten there was an intrinsic stricture, six were adherent—of these two were dilated beyond the stricture, whilst in other two a mucocele had developed. One presented the scar of an old perforation. In the larger number there was evidence of a previous chronic catarrhal inflammation with thickening [6] and adhesions.[14]

In a section of this group, the ultimate supervention of an attack accompanied by one or more symptoms indicative of inflammation of the appendix, enabled the correct diagnosis to be made. If the attack was a slight one there was possibly a difficulty in inducing the patient to permit removal, and occasionally operation was put off until an undoubted attack of appendicitis showed the uselessness of waiting. It can be understood how very disheartening medical treatment may prove when it is mentioned that the first definite attack only supervened after 4, 5, 6, 7, 11, and even 14 years of ill-health in some of them.

In ten instances in which there had been an early recognised appendicitis, operation was either not suggested or was declined. In this group painful attacks followed until the individual was tired of them. The duration of the history in these varied from 4 months to 3, 5, 7, 8, and 10 years. In one the patient had been assured that he would "grow out of it," another spent four months lying in bed under medical supervision, without evident benefit. One female patient agreed to operation at the end of eight years, but only after three definite attacks in somewhat rapid succession.

The appendix in these patients was pathologically affected in the same manner as in the more numerous group in which only recurring pains had been noticed without definite appendicitis.

In all cases examination by the X rays proves of value. At one time it did not appear possible to obtain a view of the condition of the appendix which could be relied upon as accurate. Quite recently in an appendix there was a large concretion situated beyond a stricture which had not been demonstrated in the plate which was brought by the patient. Dr. E. I. Spriggs [17] and Mr. O. A. Marxer have shown an increasing success in a number of these cases. In the eighth series of 100 they were able to define the appendix 86 times, and found it possible to prove the presence or absence of adhesions around it. It cannot always be demonstrated when pelvic in position. This examination should not be limited to the appendix region, for in some it is especially important to search for the evidence of congenital bands in the duodenal and pyloric area.

Mr. G. E. Waugh [18] has drawn our attention to the frequency of symptoms which are due to a mobile ascending colon. By dragging on structures in the upper abdomen, the gall-bladder, stomach, duodenum, &c., symptoms are produced which simulate disease of these parts. We are now chiefly concerned with what is called the "iliac fossa type" of illness, and quote his paper:—

> "In these cases chronic pain in the right iliac fossa is the salient feature added to the usual dyspeptic symptoms. . . . The condition is generally regarded either as chronic appendicitis or merely as dyspepsia in children. Pain, not very severe, which often lasts for several days, is complained of in the region of the right iliac fossa. It is intermittent in character, and examination of the abdomen seldom reveals any obvious explanation of its presence. . . . Vomiting seldom occurs, but nausea and lack of appetite are invariably present. There is often high fever with a quickened pulse-rate, and an abundance of acetone in the urine. The patient is clearly very ill, and the absence of guiding signs in the region where the symptoms are experienced is a source of anxiety which may lead to the removal of a healthy appendix. In the absence of tenderness, rigidity, and mass formation no anxiety need be felt on this score; whilst the palpation of the outline of the over-distended ascending colon is sufficient for a diagnosis to be made."

The operation of fixing the mobile hepatic flexure has proved extremely satisfactory in the large majority of his cases, and those operated on early responded most satisfactorily.

It is more than probable that many cases of this nature were operated upon before his paper appeared without satisfaction to the patient. His contribution is one of the most important during recent years.

4. *Attacks of Pain which Accompany an Iliac Swelling but in which there may be no History of Pyrexia.*—Fæcal accumulation, typhlitis, and perityphlitis; iliac abscess, secondary to spinal disease; carcinoma of the cæcum and ascending colon; dilatation and possibly ulceration of cæcum, secondary to a growth in the large bowel beyond; prolapse of distended gall-bladder containing gall-stones; dropped kidney, possibly hydronephrotic or cystic; ovarian tumour with long pedicle or with twisted pedicle; wandering spleen; sarcoma of the iliac bone.

5. *Left-sided Abdominal Pain.*—When symptoms such as those described are met with on the left side they are not often caused by disease of the appendix, unless there is a transposition of the viscera, or the appendix is held up by some adhesion to the left of the pelvis. Nearly all the instances of left-sided pain without tumour or history of fever under observation have been due to chronic constipation in the female. Probably renal calculus and calculus of the ureter are as common on the left as on the right side—but dropped kidney is uncommon. In one young adult under care for recurring attacks of severe pain on the left of the umbilicus of some years' duration nothing was revealed by repeated X ray examination, but abdominal exploration showed a *horse-shoe kidney*, the left half of which had dropped. Operation relieved his pains for a time, but has not prevented their occasional recurrence to a lesser extent.

Sigmoiditis is responsible for nearly all of the inflammatory attacks which are encountered to the left of the middle line, some of them being followed by abscess; and it is possible in many to find a swelling. The possibility of suppuration about a carcinomatous growth must not be forgotten, the symptoms being similar. In both obstruction may occur. Most cases of pneumaturia with fæcal matter and pus in the urine follow ulceration secondary to sigmoiditis, and rectal examination will show a mass in the pelvis.

Inguinal hernia in its early development may give rise to attacks of left-sided pain in the same way as it does on the right side.

The pains accompanying spinal disease, and that which precedes an attack of herpes, must be again mentioned. Obstruction from carcinoma of the colon and sigmoid will cause local swelling and peristalsis in addition to pain. In one instance of carcinoma of the transverse colon, in which obstruction was commencing, operation was considered, but declined. "An old friend of the family" administered a white powder; within a few hours acute suppurative peritonitis suddenly commenced which proved rapidly fatal. Many years ago a woman, for whom left inguinal colotomy for inoperable carcinoma was being performed in two stages, ruptured the descending colon a day or two after the first stage had been completed. Since that time I have always performed this operation at one sitting, a tube being put in at once and tension relieved.

(B) *Those Cases in which Disease of the Appendix is Latent, and the Illness for which Relief is Sought is not Attributed to its Correct Source.*—This is also an important section of our subject, about which during recent years we have accumulated more information. It is also one which is still regarded by some with a certain amount of scepticism. There are many facts on which we can rely to prove its existence. The cases are divisible into two classes: those in which the appendix has given evidence of disease in the past, and those in which no history of this can be obtained.

[17] THE LANCET, 1919, vol. i., p. 91.
[18] Brit. Jour. of Surgery, 1920, p. 343.

Much has been written about "appendix" dyspepsia, "appendix" gastralgia, &c., and it is common to see a patient who has confessed after the removal of his appendix that he has lost his "indigestion." This term may include almost, if not all, the symptoms of dyspepsia, even to those which were once regarded as pathognomonic of ulceration of the stomach, such as hæmatemesis. In some of these cases, when there has been no pain over the appendix region and no history of disease of the appendix, but where the pains have been epigastric, Dr. Blair Bell[19] wrote:—

"If the patient complains of pain in the neighbourhood of the umbilicus, hypogastrium, or elsewhere, and that pain can be reproduced by pressure over the appendix, which may not be tender to pressure itself, then it will be found that the appendix is diseased."

During an operation for such a condition, exposure of the stomach will show that there is no evidence of disease in any part of it, "but its pyloric half is seen to be in vigorous and excited action." "The stomach becomes thick, contracted, and pale."[20]

In the preceding section we have shown the "quiet" appendix responsible for varying forms of dyspepsia, and there can be little doubt that it is the cause of other morbid states. Cases of vomiting coming on at times without relation to food and without other symptoms such as pain, sometimes when the patient has gone to bed, sometimes at irregular intervals during the day may be cited.

Mr. W. H. B. Brook[21] has described a case in which the removal of a chronic appendix cured a patient suffering from ovarian pain and menorrhagia. Sir Clifford Allbutt[22] published the account of a case which was regarded as "neurasthenia," "a weary, aching, repining woman, a trouble to herself and all about her." Appendicectomy led to a permanent cure. An old history of peritonitis during adolescence was recalled afterwards. The possibility of a similar cause must be remembered in cases of this kind, for removal has been successful in other instances in which rest, &c., had been only temporarily useful.

To these may be added cases of vague ill-health in which the patient looks toxic. Lambret,[23] reported two cases, (1) ophthalmic migraine, which came on two years after an acute appendicitis; (2) epileptiform attacks which were of long standing and associated with much derangement of the digestive functions. Here there was a kind of aura originating in the cæcal region. No. 1 was cured; No. 2 much improved by removal of the appendix. Martley[24] operated upon a man who had 12 attacks of Ménière's disease before an acute appendicitis with operation. Four years afterwards he had been free from further attacks. In another case an aural attack occurred at 37 and a second at 43. Operation at 49 for acute appendicitis—no further aural attack for 20 months.

Dr. Euzière considers that it is mostly in old-standing affections of the appendix, or at least of the digestive tract, that the transference of the pain in cases of early pneumonia is made to the abdomen.[25]

In a recent annotation in THE LANCET[26] attention is drawn to a paper by Dr. O. Usland, which shows that in five cases of urinary symptoms due to bacilli treatment was not satisfactory until after removal of the appendix. In each case similar germs were found in the appendix, whence they had made their way to the right kidney. The end of the paragraph may be quoted, "The doctrine of focal infection has now reached a stage when it is liable to be parodied by undiscriminating enthusiasts and to fall into disrepute. But papers such as Dr. Usland's make it transparently clear that this doctrine contains more than a modicum of truth, and that it leads to therapeutic measures which would probably have been neglected without it."

[19] Brit. Med. Jour., 1904, vol. ii., p. 1146.
[20] Moynihan: Brit. Med. Jour., 1910, vol. i., p. 241.
[21] Brit. Med. Jour., 1907, vol. ii., p. 70.
[22] Ibid., vol. i., p. 413.
[23] Arch. Prov. de Chir., October, 1911.
[24] Brit. Med. Jour., 1914, vol. i., p. 1352.
[25] Rev. Franc. de Médec. et de Chir., 1909.
[26] THE LANCET, 1922, i., p. 807.

RETENTION OF URINE IN ELDERLY MEN.*

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As senile enlargement of the prostate is the most common cause of retention of urine in men over 60 years of age, I shall only deal with the immediate treatment of prostatic obstruction.

Symptoms of Prostatic Obstruction.

As the prostate becomes enlarged, the first evidence of retention is the presence of residual urine. This means that the patient never empties his bladder completely, but always leaves a certain residue behind. In the earlier stages of the disease the patient is quite unaware of this condition, and expresses great surprise when it is demonstrated to him. The amount of residual urine may vary from a few drachms up to a couple of pints, but from a clinical point of view it is better to divide these patients into two classes, according as the amount of residual urine is small or large. I have selected 10 ounces as an arbitary limit, and will speak of patients with less than 10 ounces residual as cases with a small amount of residual urine, and patients who retain more than half a pint as cases with a large amount of residual urine.

A patient with a *small amount of residual urine* has increased frequency of micturition, especially at night. He must rise from two to four or five times during the night to pass urine. During the day the frequency is not so marked, and he can retain urine comfortably for two or three hours. The stream is diminished in volume, and the force of the jet is poor. There is often some slight delay in commencing the act of micturition. Beyond this he has little or no inconvenience, as no pain is felt unless infection or a stone is present. These patients are seldom liable to complete retention, and if it does occur it is only transitory, and spontaneous micturition is re-established after two or three days. Retention is usually caused by errors in eating or drinking, especially by over-indulgence in alcohol, by a chill or wetting, by constipation, or if the patient has been forced to hold his urine for a considerable time after the desire to micturate has been experienced. If, however, his bladder is infected the frequency is more marked, and is diurnal as well as nocturnal, and pain or scalding along the urethra is felt during the act. Infection always renders the patient more liable to retention.

A patient with a *large amount of residual urine* has marked frequency of micturition. He is compelled to pass urine from five to ten times at night, and about every hour or oftener during the day. The stream is little more than a dribble, and there is no force in the jet. There is a long latent period, and he often has to wait for several minutes before the urine commences to flow. There is also a considerable amount of difficulty, and involuntary straining, which is sufficient to bring on an "attack of piles." However, the patient soon realises that straining does not help him to empty his bladder. There is always polyuria, the amount excreted in the 24 hours being increased to 80 or 100 ounces, or even more. I have recently seen a patient in this condition who had been passing 12 pints of urine a day for several weeks. The urine is pale, has a very low specific gravity—1005 to 1010—and usually contains a trace of albumin. The percentage of urea and of other urinary solids is notably diminished. There is little or no pain, except a slight suprapubic ache, which is due to distension of the bladder, and sometimes a dull pain in the loins due to back-pressure on the kidneys. In addition to these local signs, the patient generally shows definite evidence of renal failure. The clinical

*A post-graduate lecture delivered at the Wandsworth Municipal Hospital.

signs of renal failure are loss of weight, progressive weakness, headaches, thirst, dryness of the mouth and throat, a dry glazed tongue, distaste for solid food, constipation, a dry, harsh skin, and a peculiar earthy pallor. Some of these signs are usually present, and should always be carefully looked for, as they are danger signals, and indicate that prompt measures must be taken or the patient will lose his life.

The next stage in prostatic obstruction is complete and chronic retention, or over-distention with overflow incontinence. The latter is the most advanced stage of uncomplicated prostatic obstruction, and therefore the most dangerous for the patient. A patient with *overflow incontinence* complains that he first noticed the urine escaping during sleep, but later on the incontinence was also diurnal. He gives a history of frequency of micturition extending over several years, and may be unaware that there is a large accumulation in his bladder. He states that he has been failing both mentally and physically for some time, and invariably presents some signs of renal failure. On examination of the abdomen a large pear-shaped swelling is noticed. It commences behind the pubis, and extends upwards to, or even above, the umbilicus. It exactly resembles the uterus of about the sixth month of gestation in size, shape, and appearance. It is painless, but on pressure there is a desire to micturate. It can be easily palpated, because the abdominal walls are lax; in cases of acute retention it is often difficult to palpate the bladder on account of rigidity of the recti. It is dull on percussion. When an over-distended bladder is once seen the clinical picture is so marked that it can never be forgotten. These patients are always free from infection. The urine is clear and pale, the specific gravity is usually below 1005, and there is generally a trace of albumin. The percentage of urea and other urinary solids is very low. There is always marked polyuria. These patients are extremely prone to infection unless rigid asepsis is maintained during catheterisation, and if they once become infected they invariably die within a few days.

From its earliest stage prostatic obstruction exerts an injurious effect on the kidneys. It is a well-known fact that in the later stages the ureters and the renal pelves become dilated, and the true renal tissue atrophied by pressure. It is often difficult to see any renal cortex at all at a post-mortem examination of a patient who has died as a result of prostatic obstruction, and the microscope reveals the fact that the small amount of excretory tissue left is almost strangled by fibrous tissue. But it is not so well recognised that this gradual destruction commences almost in the earliest stage of the disease. A man with an unrelieved prostatic obstruction is constantly damaging his kidneys, and may be compared to a man living on his capital. If the capital is sufficient, and he draws on it slowly, all may go well, but if the capital is insufficient to meet the demands put upon it, he will some day be penniless. The prostatic case may live for a considerable time in apparently good health, but his renal tissue is steadily being consumed. If a crisis occurs he suddenly becomes uræmic. A slight amount of renal failure does not give rise to any clinical signs, and can only be detected by means of modern tests of the renal function, and patients who show the slightest clinical signs of renal failure must have badly damaged kidneys. For this reason the apparently healthy condition of many of these prostatic cases is most misleading.

The Treatment of Prostatic Obstruction.

The only effectual treatment of prostatic obstruction is removal of the gland, and the question of operation should be carefully considered unless some definite contra-indication exists, but there are very few contra-indications to prostatectomy. However, I now wish to point out the best methods of dealing with some of the acute accidents that may occur in the course of chronic prostatic obstruction.

In *acute retention* it is perfectly easy to pass a catheter and empty the bladder, but this may be the very worst thing for the patient. Before catheterising one should examine the abdomen, and percuss out the area of bladder dullness. If this does not rise more than two inches above the pubis there is little risk in emptying the bladder completely, but even in this case the patient should immediately be sent home to bed. He should be told that it will be necessary to catheterise him again in six or eight hours, and that during the interval he should have a brisk purge, and take plenty of fluids. Hexamine, or some other urinary antiseptic, should be prescribed as a prophylactic. The patient should be kept in bed for at least a week, or until the power of spontaneous micturition returns. It is not usual for these patients to pass at once into the stage of complete catheter life, as the attack of retention usually only lasts about four or five days, but it should be looked on as a warning, and a foretaste of a condition that will become permanent if the obstruction is allowed to persist.

If, however, it is found that the *bladder is over-distended* and either forms a palpable tumour in the abdomen or else gives a dull percussion note rising higher than two inches above the pubis, it is extremely dangerous to empty the bladder completely when the patient is first seen. If he is in great distress a catheter may be passed, but not more than 15 ounces of urine should be drawn off. This amount is the maximum that should ever be drained from an over-distended bladder under these circumstances, and the withdrawal of this amount will be quite sufficient to relieve the patient's distress. After the patient has been put to bed his bladder can be emptied slowly by either of two methods. The first is by regular catheterisation every six or eight hours, withdrawing a slightly larger quantity of urine every time the instrument is passed. For instance, if 15 ounces is withdrawn on the first occasion 20 may be taken away on the second, and 25 on the third, and so on until the bladder has been completely emptied. Once this stage is reached it is most important not to allow the bladder to refill, and a course of regular catheterisation, at least three times in the 24 hours, should be instituted. If the power of spontaneous micturition returns a catheter should still be passed every morning and evening, unless the amount of residual urine falls to less than 10 ounces. The second method of emptying an over-distended bladder is to pass a catheter, previously fitted with a spigot so that the urine cannot escape, and to tie it in place. The spigot should be removed at the end of every hour, and from 4 to 5 ounces of urine drained off. It is most important that the spigot should not become loose and allow all the urine to escape. If it does, the bladder should immediately be filled up with sterile normal saline, or boric lotion. The most important points in this treatment are: (1) never empty an over-distended bladder in an old man suddenly, and (2) once such a bladder is emptied, never allow it to become filled again.

A patient with *chronic distension and overflow incontinence* is in a still more critical condition, but he rarely suffers pain. His only complaint is the inconvenience and annoyance of the urine dribbling away. It would be better for him if he did suffer, as then he would not allow the obstruction to become so advanced before seeking advice. It is advisable not to attempt catheterisation on such a patient in one's surgery or in an out-patient department. He should be put to bed before any instrument is passed. If a fair amount of urine appears to be dribbling away it is better not to pass a catheter at once. Let him drain into a urinal, and estimate the amount of urine passed in the 24 hours. Suppose, for example, 96 ounces were passed in this time, the average hourly excretion is 4 ounces. Then pass a catheter, armed with a spigot, and draw off 5 ounces every hour. By this means the accumulation in the bladder is diminished by one ounce an hour. It is

essential that the bladder should be emptied very slowly, and the pressure only allowed to fall very gradually. A rough estimate of the time necessary to empty one of these over-distended bladders can be made by measuring the height to which it rises above the pubis. The height of the vesical swelling should not be reduced more rapidly than one inch per diem, so that if the bladder rises four inches above the pubis one should take four days to empty it completely. The reason I lay such stress upon slow drainage is that if the bladder is suddenly emptied there will be a sharp attack of hæmaturia followed by suppression of urine, and the greatest difficulty will be experienced in getting the kidneys to act again. As a rule, the patient dies about five or six days after his bladder has been emptied too rapidly. The reason for this suppression is as follows: the sudden relief of the urinary pressure causes an intense engorgement of the renal venules, which have lost their tone, and this venous engorgement may be sufficient to impede the renal circulation so much that the excretion of urine ceases. The treatment is to re-establish the urinary pressure by filling up the bladder with sterile fluid. When the excretion of urine commences again the bladder should be emptied so slowly that the veins are given sufficient time to recover their tone before the urinary pressure falls to zero. Once a chronically over-distended bladder has been emptied regular catheterisation must be instituted.

I do not recommend catheter life for prostatic retention in any case. It should never be recommended as a permanent condition. In the first place, it is dangerous. The mortality during the first month of catheter life is 9 per cent. This is greater than the operative mortality after prostatectomy. In the second place, it is a miserable existence. The majority of patients who have tried it sooner or later come to have the gland removed. Self-catheterisation may make the downward path less steep, but it does not make it any smoother or less dangerous. Lastly, I have never seen a patient who was able to avoid infection. If he is lucky the infection remains localised to the bladder, but usually it sooner or later spreads up to the kidneys. Any patient suffering from enlargement of the prostate who has more than 2 ounces of residual urine should be advised to have the gland removed without delay. When it is done in this stage the operation is a prophylactic measure, and acts as an insurance against future trouble.

Technique of Catheterisation.

Choice of Instrument.—For ordinary use a gum-elastic coudé catheter is the best. It is almost the only type of catheter used at St. Peter's Hospital. The objection that gum-elastic instruments cannot be boiled no longer holds good. Modern instruments will stand boiling if certain precautions are observed. The catheter should be dropped into boiling water, and left there for two minutes, and then cooled in a dilute antiseptic lotion. It is important that the catheter should not touch either the bottom or the sides of the steriliser, as they are always hotter than the boiling water, and their temperature is sufficient to destroy the varnish. This means that the steriliser should be long enough to take the catheter without bending it, and if there is no tray in the steriliser the catheter should be wrapped up in a piece of lint. It should also be remembered that when the catheter is in the boiling water the varnish is extremely soft, and liable to damage if roughly handled. After use the catheter should be washed inside and out in cold water, and put away dry.

Lubricant.—Sterilised olive oil is the best lubricant, as it is the best medium for diminishing friction, but it is difficult to prevent it from becoming contaminated, and it offers no resistance to the growth of organisms. Liquid paraffin is an excellent lubricant, and does not suffer from this objection. It is best to add one part of paraffin to ten of water, and boil the whole before use. The only objection to this lubricant is that it is inconvenient if the surgeon is called out to see a patient in his own home. In this case I prefer one of the catheter jellies that are sold in collapsible tubes. They are composed of a mucilage of gum, to which an antiseptic such as oxycyanide of mercury is added. This gives fair lubrication, and has the advantage that it is soluble in water, and therefore can be used for cystoscopy.

Asepsis.—Once the catheter has been sterilised one should not touch any part of the instrument that will enter the patient's urethra. This is only possible if either a gum-elastic or a metal instrument is used. The great drawback to soft rubber catheters is that this method of introduction is impossible. A soft rubber catheter must be very thoroughly lubricated and must be passed inch by inch. Any organisms on the surgeon's hands are liable to be carried by the lubricant into the bladder. On the other hand, a gum-elastic catheter has sufficient backbone, when it is at the ordinary temperature, to allow its being passed while held by its extreme end. The portion within the urethra soon reaches the body temperature, and is then soft enough to follow the curve of the urethra without doing any damage. The patient's prepuce should be fully retracted, and the whole penis thoroughly washed, first with soap and water and then with an antiseptic, and the terminal portion of the urethra should be syringed out with boric lotion, or oxycyanide of mercury (1 in 6000).

Technique of Passing a Catheter.—Stand on the right side of the patient. Hold the penis behind the corona between the middle and third fingers of the left hand, while the lips of the meatus are held open by the thumb and index finger. Hold the catheter by its proximal end in the right hand, and insert the tip into the meatus. The coudé beak should always press against the roof of the urethra. The penis should be pulled upwards by the left hand, the action being much more that of pulling the penis over the catheter than pushing the instrument down the urethra. If the penis is kept on the stretch the cul-de-sac of the bulb will be obliterated, and the coudé point will automatically enter the membranous urethra. In most cases it slides easily into the bladder, but if the middle lobe of the prostate is very large it may prevent the onward passage of the instrument. If this happens, withdraw it about half an inch, rotate it slightly, and then pass it forward again. It will then most likely travel up in the groove between the middle and lateral lobes. Usually no difficulty will be experienced if a large (Nos. 10 to 12 E.) catheter is used, and all the movements are carried out slowly and gently, and if the patient does not strain or resist. If a soft instrument cannot be passed, a coudé catheter mounted on a stylet should be tried. A 1/4 Lister's sound makes the best stylet, but as it is usually too short for the ordinary catheters they must be cut down to fit it. Grasp the penis as before, but hold the instrument, point downwards, horizontally over the middle line of the patient's abdomen. Insert the tip into the meatus, and pull the penis upwards over the catheter. Keep the instrument flat along the patient's abdomen till its point reaches the bulb, then raise the handle, and it will at once slip into the posterior urethra. Keep the penis on the stretch the whole time, and by depressing the handle between the patient's thighs the bladder will be reached. If the catheter catches, withdraw it about half an inch, then holding the stylet steady, gradually push the catheter forward over it. This will cause the point to curve forwards, and slip over the projection of the middle lobe. The greatest care and gentleness is necessary in all these manœuvres, as the enlarged prostate is very soft, and it is extremely easy to make a false passage. If any difficulty has been experienced in passing the instrument it is advisable to tie it in place for 24 hours. This will have the effect of straightening out the urethra, and will render subsequent catheterisation easy. If a blood-clot blocks the eye of the

instrument the best method of freeing it is to inject a small quantity of lotion (about half an ounce) forcibly into the bladder by means of a syringe. Lastly, if all attempts at catheterisation fail the bladder must be punctured above the pubis. It is best to cut down on the bladder, make an opening large enough to admit the tip of the index finger, and fix a de Pezzer self-retaining catheter in it. The urine can then be drained off slowly through it. If there are no facilities at hand for an open operation temporary relief may be given by puncturing the bladder by means of a trocar and cannula, but immediate steps should be taken to move the patient into a nursing home or hospital for a cystotomy.

PERI-ARTERIAL INJECTION OF ALCOHOL IN THE TREATMENT OF SENILE GANGRENE.

(Preliminary Communication.)

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THE two following cases seem to be worthy of detailed record as illustrating a new method of producing vaso-constrictor paralysis, a method free from some of the objections attendant on the operation of sympathectomy introduced by Leriche, of Lyons.

CASE 1.—Female, aged 69, was admitted to the Middlesex Hospital under my care on Dec. 26th, 1921, for senile gangrene of the right foot. Fifteen years previously the patient suffered an amputation through the right forearm for "blood poisoning." This doubtless arose from a septic infection of a finger. The stump is healthy, but the illness no doubt did toxic damage to her arteries. Two years before admission Mr. T. H. Kellock removed half her tongue for carcinoma. There is no recurrence. Ten days ago she noticed her right foot felt cold and numb. It was tender and she could not comfortably put it to the ground. She noticed, too, that it was purple and discoloured.

Condition on Admission.—A thin, rather frail woman, looking quite her age. All the toes of the right foot are blackish, cold, wrinkled, and almost immobile. Some variations in colour are recognisable. While the fourth and fifth toes are almost black, the great toe and the second and third toes are dark purple in colour. The gangrene appeared to extend some distance along the metatarsals both on the dorsal and plantar aspects. On the dorsum the dark-purple discoloration of the skin, accompanied by loss of natural heat, occupied a triangular area with its apex directed backwards reaching to the base of the second metatarsal. The boundary of this area crossed the neck of the first and the head of the fifth metatarsal, and showed traces of an incipient line of demarcation. On the sole the dark discoloration of the skin extended a little farther back, and was more sharply triangular. It was mottled with patches of lighter purple, and the loss of natural heat was less complete. Tactile sensation was completely lost over the toes and over the purple area of the foot. The patient complained only of slight twinges of pain in the foot. No pulse could be felt in any of the arteries of the right lower limb, even in the femoral. The femoral and popliteal arteries were hard, cord-like, and pulseless. In the left femoral artery pulsation was present, but the left popliteal and its branches were pulseless. On this side also the arteries were hard and cord-like, and the left foot was blue and cold, though distinctly warmer to the hand than the portion of the right foot above the gangrenous area. The urine was free from sugar and albumin.

Course of Case.—During the first three weeks of January the gangrenous area remained dry and the temperature did not rise above 99° F. The discoloration of the foot became darker, but its area did not extend. I was very reluctant to amputate on account of the patient's general feebleness and the absence of a pulse in the right femoral artery. It seemed likely that gangrene of the flaps would follow even a high amputation. On Jan. 14th discharge began to come from between the first and second toes, and the tissues over the fifth metatarsal showed signs of moist gangrene. All the toes were now quite black and shrivelled. The temperature rose to 100° and pain increased.

I considered, as an alternative to amputation, Leriche's operation of sympathectomy, but the patient's pipe-like femoral artery seemed unpromising material for such a delicate operation as the excision of a sleeve of tunica adventitia. It occurred to me that the object of the operation could be secured in a much simpler way by injecting the outer coat of the artery with alcohol. This is, of course, the present method of choice for destroying the conductivity of sensory nerves, and there seemed no reason to doubt that it would be equally effective for the sympathetic nerves. I feared, groundlessly as it turned out, that the arterial narrowing was entirely due to organic thickening of the walls, and would be unaffected by artificial vaso-motor paralysis, but nevertheless, as amputation was the only alternative, I decided to try the alcohol injection.

On the 23rd, under light ether anæsthesia, I exposed the right femoral artery in Hunter's canal, divided its sheath, and with a very fine hypodermic needle, obliquely introduced into the tunica adventitia, I injected about 4 minims of rectified spirit at each of four equidistant points around its circumference. No pulsation could be felt in the artery, even when exposed. No local change in the calibre of the artery followed the injection, but where the alcohol was injected a whitish, ill-defined, opaque band appeared around the vessel. The wound was irrigated with flavine and closed. The following day, the 24th, the patient volunteered the statement that she felt better and more comfortable in her foot. During the few days previous there had been increasing pain in the foot. On examination the foot, contrary to all previous observations, was decidedly warmer than the sound foot. A return of warmth was noticeable even on the dark, purplish-black areas on the dorsum and sole.

On the 31st an area as large as a penny on the dorsum at the base of the great toe, which had been black, was found to have recovered its normal colour. Surface thermometers were used for the first time. They showed on the dorsum of the right (affected) foot above the gangrenous area a temperature of 31°C. At the corresponding spot on the left foot the temperature was 29°C.

On Feb. 15th the right leg and foot were still decidedly warmer than the left. The dark purple area on the dorsum was becoming lighter, and islets of comparatively normal colour were appearing over the discoloured area on the sole. The foot was warm up to the base of the toes. On Feb. 17th the surface temperatures were, right foot 31·5°, left foot 27°. On the 21st right foot 31·75°, left foot 27°. There was thus a slowly progressive increase in the surface temperature of the right foot, accompanied by a fall in the temperature of the left (normal) foot. The latter event may perhaps be accounted for by the diversion to the right lower limb, owing to the relaxation of its arteries, of an undue share of blood. The operation was in fact robbing Peter, the left foot, to pay Paul, the gangrenous foot. The condition of the left foot, which was distinctly more cold and blue than before, caused me some anxiety, and a prophylactic injection of the left femoral artery was considered, but was postponed in view of the predominant needs of "Paul" at the moment. By March 27th, when the second pair of drawings were done, the dorsum had recovered its colour as far as and a little way along the toes. Definite inflamed lines of demarcation had appeared round each toe near its base. There was still some light mottled discoloration of the sole of the foot, but it was rapidly clearing up. There appears to be every prospect that amputation will be avoided and that the patient will recover with the loss of her toes only.

By the 31st the line of demarcation round the toes had become a deep groove and the dead portions of the toes could be rocked upon the still living portions. The excellence of the vascular supply right up to the line of demarcations was shown not only by the bright colour of the granulations forming the floor of the groove, but by the entire absence of sepsis at the line of separation.

In this case the revitalisation of a portion of the foot which had shown all the early signs of mortification and had been provisionally marked off for separation by a slight but definite line of demarcation, is a phenomenon unique in my experience. Was this tissue dead, and did it undergo a local resurrection? It seems more likely that, though it showed the signs of death, it was in a moribund but still recoverable condition when the reviving tide of blood reached it.

CASE 2.—A male, aged 76, was admitted to the Middlesex Hospital under my care on March 7th, 1922. There was nothing important in his history except that he had suffered from painter's colic severely at the age of 45 years. Six weeks before admission one evening the patient was bathing his feet, when suddenly his left foot became cold and numb. He rubbed his left foot but could not get it warm. There was pain in the foot on trying to walk. He went to bed and had his left foot rubbed for half an hour and painted with iodine. During the night the pain became more acute, and medical advice was sought. During the succeeding three weeks the pain was acute, but it has gradually diminished,

until now he feels only twinges which go from his heel to his ankle, and from the big toe up to the front of the ankle. He also has "pins and needles" in the foot.

Condition on Admission.—Pulse 78, temperature 98° F., respirations 20. The left foot shows a dry type of gangrene with crinkled skin extending from half way down the metacarpal bones to the ends of the toes. The sole of the foot is also affected up to the os calcis. The colour of the gangrenous part is darkest purple to black, and it is bounded by a well-marked line of demarcation. The gangrenous area is cold, but the part above it feels warmer than the corresponding part of the opposite limb. The pulse cannot be felt in the dorsalis pedis or posterior tibial artery of the affected limb, but is present in the popliteal artery. In the sound limb pulsation can be felt in all the arteries. The urine is free from sugar. Systolic blood pressure 160, diastolic blood pressure 120.

A. FIG. 1. B.

FIG. 1. A, B.—Two views of the right foot in Case 1, just before operation, showing the extensive area of gangrene.

In this case the symptoms indicated an embolic gangrene, and therefore the case did not appear suitable for alcoholic injection, especially as the non-gangrenous part of the foot on the affected side already showed an increase of surface temperature. Nevertheless, in the forlorn hope of averting an amputation, it was decided to try the injection.

On the 9th the injection was made round the femoral artery in Hunter's canal, exactly as in Case 1. Immediately after the operation the temperature on the affected side rose 1¾°, while that of the sound leg remained constant. On the 14th the surface temperatures were: Sound leg 32·4°, affected leg 33·5°. The patient was much more comfortable. He was sleeping well and feeling much better, but still had some twinges of pain in the foot. On the 17th temperatures were: Sound leg 31°, affected leg 33°. On the 21st: Sound leg 30°, affected leg 32·25°. The operation wound was healed, the gangrene remained dry and stationary. No recession of the line of demarcation was noted.

In this case, as was expected, the operation brought but slight benefit, although it may have prevented the further extension of the gangrene. It is interesting to note that the operation definitely accentuated the vaso-dilatation already present. Possibly, therefore, it may enable amputation to be done through the ankle instead of through the thigh.

Later Note.—April 1st, 1922. Patches of the dark purplish area of the metatarsal region are slowly recovering their natural colour, though situated distal to the line of demarcation.

C. FIG. 2. D.

FIG. 2. C, D.—The same foot 35 days after peri-arterial alcohol injection of the superficial femoral artery showing recession of the line of gangrene and the formation of new lines of demarcation around the toes.

The Work of Leriche.

I propose now to give some account of the important pioneer work of Leriche[1] which first directed my attention to the subject of this paper, and to indicate certain differences in the results given, by sympathectomy and by alcoholic injection respectively. Leriche has found that if an artery is exposed by the division of its sheath, and if its adventitia is pinched, a contraction of the vessel occurs, its pulsation stops, and its size diminishes. If the cellular layer (presumably the tunica adventitia) is actually excised, the artery shrinks still more, to one-third or one-fourth of its normal size. The contraction affects only that portion of the artery which is injured by the operation. It usually causes the pulse to disappear, but does not altogether interrupt the circulation. For some hours pulsation is imperceptible or feeble, and the limb is colder than its fellow by 3° or 4° C. After from 3 to 15 hours entirely different symptoms supervene—namely, (1) an elevation of local temperature, amounting to 2° or 3° in the affected limb, accompanied by a subjective sensation of heat, (2) an elevation of arterial pressure up to 4 mg. in the affected limb as compared with the opposite limb, and (3) an increased amplitude of the pulse, as shown by sphygmographic tracings. It is important to notice that after peri-arterial sympathectomy this vaso-dilator reaction is transitory. It diminishes about the fifth or sixth day and disappears in from three to four weeks.

Technique of Sympathectomy.

Leriche thus describes his operation:—

"The technique is to isolate the artery on (? for) 8 to 10 cm., to fix the vascular sheath after dividing, to hold one part with a forceps and dissect off the cellular tissue either with knife or cannular round until there has been effected complete denudation of the vessel, which becomes greatly reduced in size. This brings no injury to the arterial wall. I verified this fact twice at four and eight months' interval."

Leriche has had successes from sympathectomy in the following conditions: (1) Causalgia after war wounds; (2) certain painful crises preceding gangrene

[1] Some Researches on the Peri-arterial Sympathetics, by Rene Leriche, M.D. Lyons, Annals of Surgery, October, 1921.

caused by obliterative endarteritis; (3) "painful acroparæsthetic syndromes consecutive to bruise of finger, to wounds of hand, palm, or foot-sole"; (4) in Raynaud's disease; (5) sometimes in cases of painful stump; (6) in muscular spasm secondary to war wounds; (7) in trophœdema; and (8) in trophic ulcers but here the result may be temporary. Leriche has performed the operation 64 times.

Differences Between the Results of Sympathectomy and of Peri-Arterial Alcohol Injection.

In sympathectomy local contraction of the artery occurs, and a period of very low circulation, lasting up to 15 hours, precedes the onset of vaso-dilator symptoms. The vaso-dilator symptoms, when they supervene, last only for three or four weeks. It is obvious that an initial extreme vaso-constriction lasting possibly as long as 15 hours may be very dangerous in gangrene or threatened gangrene, and that the period of vaso-dilatation secured—three or four weeks only—is all too short for the accomplishment of such a great work as the separation of the toes, or of a portion of the foot. It is noteworthy that Leriche does not record success in the treatment of actual, but only of threatened gangrene, so that the method here described appears to succeed in cases not amenable to arterial sympathectomy.

In peri-arterial alcohol injection, judging provisionally from the two cases in which I have used it, *there is no initial period of diminished circulation;* the vaso-dilator results aimed at by the operation are produced at once, without any temporary aggravation of the condition which the operation is intended to cure. No local contraction of the artery occurs at the site of the injection.

In my second case, of which I am not in this preliminary paper giving details, the surface temperatures of the limbs were taken just before and immediately after the operation:—

	Sound leg.	Leg operated upon.
Before operation ..	29½° C.	32¼° C.
After operation ..	29½° C.	34° C.

The rise in temperature shows that the vaso-dilator action was immediate.

I suggest that in sympathectomy there are two factors at work—namely: (1) the interruption of the vaso-constrictor fibres; (2) a local injury of the muscular coat of the artery causing a local muscular spasm which produces the initial constrictor symptoms. The latter factor is very undesirable and easily avoidable by substituting for sympathectomy the method of alcohol injection. The evil results of local injury of the muscular coat of the artery would appear to be remote as well as immediate. It is difficult to understand why the effects of sympathectomy should pass off within three or four weeks, while the effect of alcohol injection in my case remains unimpaired at the end of nine weeks, except by assuming that the injury to the muscle coat done in sympathectomy is followed by a ring-constriction of the artery due to local fibrosis of the injured muscle. Perhaps Dr. Leriche has some direct observations on this point.

My last claim is that peri-arterial alcohol injection is a much simpler method than excision of a lamina of the arterial coats. To Leriche belongs the entire credit of showing the therapeutic possibilities of artificially produced vaso-constrictor paralysis, but his method of arterial sympathectomy has serious disadvantages, and I venture to think that the method described in this paper is destined to replace it. Peri-arterial alcohol injection has no initial constrictor effect, and the resulting vaso-dilatation is more lasting than that produced by Leriche's operation.

The procedure should possess even greater value in the prevention of senile gangrene than in the treatment of gangrene which has already taken place. It may prove to be applicable to other ischæmic conditions of vasomotor origin.

DANGERS OF RAPID INTRAVENOUS INJECTION OF QUININE SOLUTION.

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IN a paper published in THE LANCET two years ago[1] I pointed out that there may be a dangerous fall of blood pressure after injection of concentrated solution of quinine in the treatment of malarial fever. Since then I have made further observations and have confirmed my former conclusions. I have also observed that there may be a dangerous fall of blood pressure during rapid intravenous injection of solutions of quinine. The whole problem depends upon the amount of quinine passing through the heart every second; and the slower the injection, therefore, the less chance is there of a profound fall of blood pressure. Besides, if the rate of injection of the diluting fluid be the same, a greater quantity of quinine will be passing through the heart each second if the solution is concentrated than when it is dilute. Some observers have pointed out that intravenous injection of large quantities of saline, such as a pint, may prove too much for a weak heart, and the comparison of solutions greatly diluted and concentrated at once arises.

The problem divides itself into the following parts: 1. How much saline may be safely injected into a severe case of malaria, where the patient's blood pressure is low, say, 60 or 70, or when he is absolutely collapsed? 2. Is there any advantage or disadvantage in diluting the quinine solution beyond a certain limit? 3. Is there any danger in using the drug in a concentrated solution, using, say, 15 gr. in 5 c.cm. and completing the injection in 75 to 100 seconds. In my opinion the amount of quinine injected into a vein at the bend of the elbow should not be more than 1/120 gr. per second or ½ gr. per minute. This will mean that 10 gr. will take 20 minutes for completion of the injection. If one uses a dilution of 1 in 300, this will mean that 10 c.cm. will take one minute for injection and the total amount of fluid injected will be 200 c.cm. Injection of fluid beyond this limit into a patient whose blood pressure is very low is likely to cause pulmonary œdema which may prove very serious in certain cases of pernicious malaria. A dilution less than that may make it very difficult to inject at the rate of 1/120 gr. of quinine per second.

The danger of injecting saline in large quantities was illustrated in a case of mine in a collapsed state suffering from pernicious malaria, in whom an injection of a pint of normal saline was followed by a very marked pulmonary œdema. I cannot, therefore, recommend dilution of 15 gr. of quinine in 4 to 6 pints, as has been recommended by some authorities, which would mean a dilution of 1 in 3000 to 1 in 4000. In my opinion, injection of quinine in strength of 15 gr., dissolved in 5 c.cm. given in 1½ to 2 minutes, is dangerous, although considered by others to be a safe procedure. This would mean injecting ⅛ gr. to ¼ gr. per second and may prove dangerous.

Changes of Blood Pressure.

In some cases I made observations on the systolic, diastolic, and pulse pressures, and occasionally I found that while the systolic pressure would tend to fall, the diastolic pressure would tend to rise, making the pulse pressure lower than before, which would be very dangerous to circulation if the systolic pressure is already very low. I have also observed that the more concentrated the solution, the greater is the chance of the pulse pressure being lowered and sometimes there is a marked irregularity in the systolic blood pressure for some seconds after the injection has been given, pointing, as it were, to the conclusion that the systolic output of the heart is irregular for a few seconds after the injection.

[1] THE LANCET, 1920, ii., 1301.

These changes of blood pressure are all-important factors in the operation of intravenous injection of quinine; the more concentrated is the solution, the more likely are they to take place.

Regulation of Rate of Injection.

It may be argued that a concentrated solution may be injected very slowly and so there may be no need of diluting the solution. As pointed out before, to inject 10 gr. dissolved in 200 c.cm. in 20 minutes would require 1 minute for each 10 c.cm. It would, therefore, be necessary to inject the solution still more slowly if a concentrated solution is used, and if it is intended to inject the same quantity of quinine per second. Thus for a solution of 10 gr. in 100 c.cm., one must inject 5 c.cm. in not less than one minute, and the stronger the solution the slower must be the rate of flow and the more difficult to regulate the rate of flow. Concentrated solution of 20 per cent., or 15 gr. in 5 c.cm., as has been recommended by some authorities, would mean that one must inject 5 c.cm. in 30 minutes. It is evident that this is hardly practicable. For the purpose of regulating the flow very accurately, I have devised a specially fine needle with which the flow can be easily regulated at the rate of 10 c.cm. of saline per minute. I have observed that the use of Bayliss's solution in place of normal saline does not tend to diminish the tendency towards fall of blood pressure after injection of concentrated solution of quinine. From what I have stated above, it is evident that the rate of injection should be still slower in the case of children, because if in the adult the limit should be 1/120 gr. of quinine, in the case of children this should be still less. I would suggest that not more than 5 gr. should be injected in patients below 15 years of age in 20 minutes, which is half the rate in the case of an adult.

Two Stages of Fall of Blood Pressure after Inoculation.

The fall of blood pressure after intravenous injection of quinine may take place in two stages: (1) A fall that may take place immediately after injection; and (2) a fall that may come on some minutes after injection has been completed and when the quinine has been well diluted in the circulation.

The former may prove rapidly fatal, the latter may happen whatever may be the dilution of the quinine used. To guard against them I would advise that in all cases of malarial fever in which the blood pressure is low—as is frequently the case with the pernicious type of the disease—intravenous injection

Table showing Results of 5 gr. of Quinine Bihydrochloride dissolved in 100 c.cm. of Normal Saline.

—	Duration of each injection in seconds.	Quantity in c.cm. of fluid injected each time.	Pressure.		
			Systolic.	Diastolic	Pulse.
Before injection	..	..	95	65	30
1	40	10	95	65	30
2	30	10	95	67	28
3	40	10	95	70	25
4	45	10	95	68	27
5	35	10	95	70	25
6	25	10	95	68	27
7	35	10	95	70	25
8	35	10	95	65	30
9	32	10	95	72	25
10	40	10	90	65	25
Minutes after completion of injection.		4	92	65	27
		9	90	70	20

of quinine should be given guarded with injection of pituitrin or adrenalin. Whatever may be the advantages of a 10 c.cm. syringe, and however simple and quick the procedure may be when it is used, I consider that a concentrated solution of quinine should never be rapidly injected intravenously, and as it may be impracticable to inject such a concentrated solution very slowly, a dilute solution of the strength recommended should always be used.

The accompanying table shows typical effects on systolic, diastolic, and pulse pressures of intravenous injections of dilute solutions of quinine bihydrochloride. It will be observed that the injections were given more or less slowly. In some cases there was still a tendency towards fall of systolic and rise of diastolic pressures. It is to be noted that in this paper "solution of quinine" always means solution of quinine bihydrochloride in normal saline.

Conclusions.

1. In giving intravenous injection of quinine bihydrochloride the solution of the salt should not exceed the strength of 1 in 300; it should be injected at the rate of 10 c.cm. per minute in the case of patients above 15 years of age.

2. The rate should be half the above in the case of patients below 15 years of age.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

THE SIGNIFICANCE OF ERYTHROMELALGIA IN CASES OF INTERMITTENT CLAUDICATION OF THE LOWER EXTREMITIES.

BY F. PARKES WEBER, M.D. CAMB., F.R.C.P. LOND.

INTERMITTENT claudication of the lower extremities (dysbasia intermittens, angina cruris, &c.) is a syndrome or symptom-complex, occurring on one or both sides, characterised by a feeling of cramp-like pain in the muscles of the calf or instep, which supervenes after a few minutes' walking and obliges the patient to rest, as best he can, before proceeding. It is due to deficient supply of arterial blood to the affected muscles, and this ischæmic condition is nearly always caused by organic obstruction of some kind in the supplying arteries. This syndrome is frequently, but not always, accompanied by the syndrome of erythromelalgia, characterised by pain and turgid redness or cyanosis in the foot, especially when it is allowed to hang or rest in a dependent position. Erythromelalgia, a term originally introduced by Weir Mitchell, is probably not invariably, though in typical cases nearly always, due to organic arterial obstruction.

When the intermittent claudication results from atheromatous or other obstruction high up in the femoral or iliac arteries or in the abdominal aorta, it is not usually accompanied by typical erythromelalgia. But it is nearly always accompanied by typical erythromelalgia in cases of thrombo-angeitis obliterans. My explanation[1] of this is that in the latter disease, which must not be confused with syphilitic arteritis or endarteritis obliterans, the capillaries (not merely the small arteries and veins) ordinarily undergo compensatory enlargement; the obstruction is, in fact, usually in the middle-sized and small arteries, and the capillaries have to take a much greater share in maintaining the collateral circulation than when the obstruction is limited to one or two larger arteries. Erythromelalgia is therefore very significant in cases of intermittent claudication—it signifies that in order to maintain sufficient circulation to prevent the onset of ischæmic gangrene in the foot even the capillary blood-channels have to become dilated. In other words, erythromelalgia is part of the automatic compensatory mechanism in these cases by which the tendency to ischæmic gangrene is resisted. I have known it to be successful when it might have been thought that only amputation could bring relief.

Harley-street, W.

[1] Quarterly Journal of Medicine, Oxford, 1916, vol. ix., pp. 289–300.

A CASE OF CEREBRAL ABSCESS COMPLICATING BRONCHIECTASIS.

BY C. DE W. GIBB, M.R.C.S. ENG.,
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THE following case is considered worthy of record because cerebral abscess complicating bronchiectasis is comparatively uncommon, and also because this case belongs to the type described by Ballance[1] in which an abscess may remain latent producing no symptoms referable to the brain until excited to activity by some form of trauma.

A male, aged 46, was admitted to King Edward VII. Hospital, Cardiff, on Feb. 3rd, 1922, in a semi-conscious condition. The history given was that the patient had fallen into the hold of a ship, striking the left side of his face against the bottom of the hold. His nose bled after the accident, and he at once became unconscious.

Two and a half years before admission, he had had an illness described as "bronchitis and pneumonia." After this illness he suffered from cough with expectoration, for which he attended the out-patient department of this hospital from Jan. 12th, 1920, to Dec. 4th, 1920. Dr. H. T. Evans at that time diagnosed "bronchiectasis."

Condition on Examination.—The patient could be roused to answer questions. There was an abrasion on the left cheek, but no other injuries could be detected. There was no bleeding from the ears, nose, or mouth; the pupils were normal and there was no paralysis. The temperature was 97·4° F., pulse 48, respirations 20.

Course of Case.—The patient regained consciousness three days after admission and complained of frontal headache and cough. An examination of his chest revealed signs of bronchitis. His pulse was still slow, varying from 50 to 56. He was rational, and stated that he had been at work for more than a year and had not felt ill prior to the accident. By Feb. 12th the headache, which had persisted in spite of treatment, became more general in distribution. On this date he commenced to vomit small quantities of watery fluid. The vomiting was effortless and not related to the taking of food. His pulse had remained slow, being 48 on this date. The patient was becoming thinner and did not readily take food. He became progressively worse, and on the 14th his eyes were examined by Dr. Tudor Thomas, who reported no optic neuritis in either eye. On the 15th a lumbar puncture was performed, when several c.cm. of clear fluid were obtained at normal pressure. An examination of the cerebro-spinal fluid showed it to be normal (Prof. E. Emrys-Roberts). The headache was temporarily relieved by the lumbar puncture. On the 16th a second lumbar puncture yielded only a few drops of clear fluid. On this date heart-block was noted, one beat in six not reaching the pulse, the rate of which was now 40 per minute. On the 18th the reflexes were as follows: Babinski's sign present on both sides, but greater on right; contra-lateral stepping movement greater on the right side both on pinching the skin of the dorsum of the foot (Babinski) and on pressure on the toes (P. Marie). Left arm and leg flaccid. The patient had become decidedly worse by this date, being now semi-conscious. The temperature rose to 101°, and the pulse was rapid, 88, and feeble. There was incontinence of urine and fæces. An examination of the fundi on this date did not reveal any abnormality.

The condition became rapidly worse and the patient died at 1.10 P.M. on Feb. 21st. The urine throughout was normal. A Wassermann test of the blood was negative. There were no twitchings and no fits. An X ray photograph of the head was proposed at a late stage, but was not effected because the patient was too bad to be moved.

Prof. A. W. Sheen, to whom I am indebted for permission to publish the case, made the following commentary before an autopsy had taken place:—

"There was no evidence of a gross head injury sufficient to account for the symptoms and result detailed above, and it was thought that possibly the active development of some cerebral condition made the man giddy and caused him to fall. The headache and slow pulse suggested cerebral tumour, gumma, or abscess, but the absence of optic neuritis was against these. The only localising symptom consisted in the late development of left arm and left leg paralysis. The slight bleeding from the nose, stated to have occurred immediately on receipt of the injury, indicates the possibility of a fractured base, but there was no further bleeding. The possibility of a lung infection becoming generalised and attaching the cranium was considered."

Autopsy.—An abscess about the size of a large walnut was found in the right temporo-sphenoidal lobe. It consisted of a thick capsule containing greenish-yellow pus. From its size and the thickness of its wall the abscess was judged to be long standing. Signs of fractured skull or of middle-ear disease were absent. There were several large bronchiectatic cavities in the lower lobe of the right lung. There were areas of broncho-pneumonia in the lower lobe of the left lung. The trachea and bronchi were full of pus. The pus from the cerebral abscess on cultivation (Prof. E. Emrys-Roberts) gave a growth of Friedländer's pneumobacilli.

Remarks.

The association of bronchiectasis with abscess of the brain was shown by the researches of Schörstein,[2] who found that among 13,700 autopsies at the London Hospital and the Brompton Hospital, there were 19 instances of cerebral abscess with pulmonary disease, usually bronchiectasis. The flaccid paralysis of left arm and leg and absence of facial paralysis is of interest when compared with Horsley's description: "In abscess of the temporo-sphenoidal lobe, hemiplegia of the opposite side is apt to develop. The face is most and first involved, next the arm, next the trunk, and finally the leg."[3]

Choked disc is not invariably found. It may be more marked on the same side as the abscess.[4] It occurs more frequently in cases of tumour than in those of abscess. The temperature is more likely to be subnormal in cases of encapsulated abscess. Years ago Sir Samuel Wilks[5] called attention to the depression of temperature frequently noted in cerebral abscess.

References.—1. Jacobson: The Operations of Surgery, vol. i., p. 352. 2. Osler: The Principles and Practice of Medicine, eighth edition, p. 627. 3. Horsley: THE LANCET, 1912, i. 4. Da Costa: Modern Surgery, eighth edition, p. 904. 5. Ibid., p. 904.

ADMINISTRATION OF THYROID GLAND IN HYDROCEPHALUS.

BY J. PEREIRA GRAY, M.D. BRUX., M.R.C.S. ENG.

THE following notes of a case of hydrocephalus completely cured by thyroid feeding may prove of sufficient interest to merit publication.

A male infant was born at the Poor-law Infirmary, Exeter, on March 30th, 1921. Delivery was normal and unaided. The infant weighed 7¼ lb. It took the breast well. Both mother and child were discharged in good health on April 13th, 1921. On Nov. 29th the mother sought readmission on account of anæmia, wasting, and loss of appetite. No definite tuberculous lesion could be detected. The child had to be weaned, and was put on cow's milk and lime water, and sent to the nursery. It began to lose weight; the limbs grew flaccid; veins on the scalp began to enlarge. The child was most carefully fed, rubbed all over with cod-liver oil, and half-grain doses of grey powder administered daily. A weak faradic current was applied to the limbs. The condition soon became hopeless. The child's screeching was almost incessant; deglutition was very difficult. It lay quite motionless with the enormous globular head immovable on the pillow. The slightest touch was painful.

On Feb. 6th ½ gr. of thyroid gland extract was administered by the mouth. As the child seemed more composed the dose was increased to 1 gr. on the 15th. Improvement was rapid. The screeching ceased, appetite improved, the veins on the head began to disappear. The circumference of the head, 20 inches on Feb. 6th, fell to 18 inches on May 22nd. The weight increased from 10 lb. 12 oz. on March 19th to 12 lb. 11 oz. on May 19th.

The child, now 14 months old, is normal in every way, sits up in bed, makes brave attempts to stand, has a ravenous appetite, and a mouthful of sound teeth.

THE LATE DR. F. W. JOSHUA.—Dr. Francis William Joshua, who died at his residence at Great Malvern on July 8th, received his medical education at Edinburgh University, where he became L.R.C.P., L.R.C.S., and L.M. in 1881. He began practice in Great Malvern in 1883, and held the post of hon. physician to the Midland Counties Home for Chronic and Incurable Diseases at Leamington; at Great Malvern he was hon. consulting medical officer to the dispensary and surgeon to the Samaritan Charity. He took a great interest in the Droitwich brine baths at Malvern, being the first medical officer associated with that institution, and wrote a pamphlet on the subject which was read before a section of the British Medical Association on their visit to Malvern in 1901. Various articles from his pen appeared from time to time in THE LANCET.

Medical Societies.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION:

THE ANNUAL MEETING AT EDINBURGH.

THE annual meeting of the Medico-Psychological Association of Great Britain and Ireland commenced its session in Edinburgh on Wednesday last, when Dr. GEORGE M. ROBERTSON, Professor of Psychiatry in the University, and Physician-Superintendent of Morningside, delivered his Presidential Address in the Hall of the Royal College of Physicians. He took as his subject

THE HOSPITALISATION OF SCOTTISH ASYLUMS.

Prof. Robertson introduced his exposition of the ideals of the Scottish Asylums system by pointing out that the dominating idea in Scotland has been to transform the asylum into a hospital for the treatment of a special disease, or a disease which cannot be treated in the wards of general hospitals. Much alteration in construction and conduct of asylums, he said, had to be undertaken before the institutions could assume the hospital character.

The Prison Origin of Asylums.

"Speaking broadly," he said, "the asylum had its origin in the prison, and neither in its construction nor in its administration has it yet emancipated itself completely from this prototype. The numerous single rooms in asylums, formerly called cells, are directly adopted from the prison, and the confining of patients in these rooms is another relic of this origin. Thus a practice, which is now condemned as a regular procedure, was encouraged by the designs of architects, who, as a rule, knowing little or nothing of medical ideals, copied from one another and perpetuated undesirable features and methods. The exclusion and non-employment of women to nurse the sick and the infirm in the male wards of asylums is still another result of this legacy. It is a perpetual reminder of the fact that the original conception of an asylum was less that of a hospital for the care and treatment of a special disease than of a safe place of detention for the custody of a dangerous class."

The responsibility, he pointed out, on those charged with the care of the insane was heavy. The patients, individuals whom the public, after careful inquiry, found unfit to be at large, were officially, through judge or magistrate, ordered to suffer detention in special institutions, primarily for the purpose of safety. The public expected them to be cared for kindly, but had no idea of the practical difficulties of steering a middle course between the safety of the lieges on the one hand—upon which it insists—and the happiness of the patient on the other. When former patients suffering from warped views and treacherous memory, wrote their grievances to newspapers, there was an outcry that sane persons were being illegally detained and harshly treated. But when some crime had been committed by an insane person, or when an escaped patient had alarmed some quiet neighbourhood, equally indignant letters appeared saying how intolerable it was that more stringent measures were not taken to prevent the freedom of such dangerous persons. Prof. Robertson described the medical superintendent as "a man who works on the edge of a precipice, who lives over a powder magazine," adding that, while the superintendent was the sole authority on the medical side, he is in Scotland controlled by a board chosen for business-like and humane qualities. He admitted that progress had not been furthered always by medical superintendents in the past, but pointed out that asylum administration is not a public service that can be usefully open to public inspection, because the relatives of patients object to publicity both on their own behalf and on behalf of those patients who may be reasonably expected to recover. Of the General Board of Control he spoke in the following high terms.

The Board of Control.

"It has always had distinguished medical commissioners on its staff and enjoys a reputation which is European, as Mr. Munro, the Secretary for Scotland, informed the House of Commons when resisting a motion for its absorption in the Board of Health. Shortly after its establishment, in 1857, the Board took a momentous decision, which has had far-reaching consequences, the influence of which still continues to be felt. It decided not to create a stereotyped official system, nor to insist on a rigid conformity to any system of care, treatment, or building construction, but to leave each asylum authority free to initiate its own administrative arrangements and methods of care. It is believed that to the scope thus given to individual initiative, combined with the freedom of action entrusted by the laws to medical superintendents, much of the success of the Scottish system is due. The medical superintendents, finding themselves free to launch reasonable schemes in any direction their personal inclinations led them, did so with an enthusiasm they would never have shown had these been measures forced upon them by any external authority. While one made a special feature of the occupations and amusements of his patients, another of their food or clothing, a third of the extreme limits to which freedom could be accorded them, a fourth of the excellence of their nursing, yet another devoted himself to medical treatment, to clinical research, or to laboratory work, though there was little inducement to follow these last important lines of pursuit. The Board of Control, watching each development, brought successful experiments of every kind to the notice of other superintendents, and these innovations, if approved of, were introduced with more or less success into the other asylums. By these means stagnation was avoided, a high general average was attained, and there was no asylum that did not pride itself on some feature in which it firmly believed it excelled all the others."

The Abolition of Prison Features.

Prof. Robertson made no attempt to describe in any systematic or chronological order the innovations introduced in Scottish asylums, but dealt in some detail with the elimination of prison-like features. He attributed the abolition of the "airing-court" system in all Scottish asylums to the accident that when during structural alterations one of the walls of an airing-court was taken down at a particular asylum the superintendent noticed that none of his patients manifested any desire to escape. From that time forward it had been the rule, he believed, in Scottish asylums to give the patient considerable liberty inside the large grounds attached.

He described the era of non-restraint associated with the names of Gardiner Hill and Conolly, the latter of whom did not so much do away with mechanical restraint as employ single cells and padded rooms for troublesome patients. "The solitary confinement of patients in single rooms during the day," continued Prof. Robertson, "became an abuse just as mechanical restraint had formerly been, and to check this a note of its employment had to be registered for the information of the Board of Control. In several large asylums, however, it was found that its use could be altogether discarded, so about twenty years ago the Board decided to publish in their annual reports a comparative table of its use by the different superintendents of asylums. This was quite sufficient for the purpose in view, for it soon led to the practical abolition of its use in Scotland, except in very special cases in which it was justified. The padded room of Conolly was also used freely by a former generation of medical superintendent. I have taken scores of laymen round asylums in the past, and I always found that the padded room had a morbid interest amounting to a fascination for them. To experience in jest the emotion of being locked up in one was the climax of their interest in their visit. Many persons

seem to entertain the idea that asylums are plentifully supplied with such conveniences, and that they form the characteristic feature of the care of the insane. Our largest and best-managed asylums do not now possess any padded rooms. A delirious patient who does not know what he is doing, like a patient suffering from the analogous delirium of typhoid fever, should not be left alone in a room, even though the floor be a bed and the walls padded, for he requires constant supervision and attention."

Prof. Robertson considered the abuse of single rooms to have had disastrous consequences in some cases, while the keynote of modern reform was the substitution of continuous personal attention for the mechanical safeguard of a locked and shuttered apartment.

The Boarding-out System.

"The success of the boarding-out system," he said, "has attracted the attention of the civilised world. . . It costs less than any other method of maintaining the insane, and, in addition, the State is spared the necessity of building expensive institutions to accommodate these patients. . . . Further, the patients are far happier leading natural lives in a congenial environment as simple members of a rural community, doing such work as they can, than as units of a multitude in a large public institution. Here our practice has gone as far away as it possibly could from any suggestion of prison or of restraint, and the unrecovered patient is replaced in a natural home under more familial and domestic supervision."

Introduction of Hospital Features: Nursing.

With the introduction of hospital features into asylum management the name of the late Sir Thomas Clouston must be, said the lecturer, particularly associated, while he was followed as a reformer by the late Dr. Cambell Clark, whose courses of instruction for nurses and attendants had been published in a text-book, now adopted by the Medico-Psychological Association.

"Thirty years before the recent Act for the Registration of Nurses was passed," continued Prof. Robertson, "mental nurses, through the agency of this Association enjoyed practically all the advantages now being conferred for the first time on hospital and other nurses. The training and instruction of mental nurses in the Scottish asylums has all along been conducted with care, success, and zeal, as was only natural in view of the history of the movement. Another important advance was the appointment of hospital nurses as matrons of the female divisions of asylums. Its main object was to improve the quality of the sick-nursing, but another was to place an educated woman with medical training and instincts at the head of the female staff. The most serious defect of this departure at first was the total ignorance of the new matron of even the elementary procedures of a special kind needed for the safe and proper care of the insane. After many failures had occurred it was recognised that some preliminary asylum experience was necessary, and this defect was overcome 25 years ago by the appointment of three hospital nurses as assistant matrons with the object of training them in mental nursing and asylum management, so as to fit them for the post of matron. When these had gained the experience needed, they were all successful in obtaining appointments because there were no other candidates with equal qualifications to compete against them." Prof. Robertson spoke very strongly on the question of the employment of women to nurse male patients. He asked whether the male side of an asylum could be considered analogous to any part of a modern hospital without the presence of a single female nurse, while women showed such superior qualities in nursing. The system of female nursing in the male wards had, he said, in some measure or another been adopted for nearly a generation in all but one of the asylums in Scotland, and the vast majority of women preferred to nurse male patients as being less troublesome, less excitable, more courteous, and more obedient. He concluded his description of the introduction of hospital features into asylums as follows: In more than a third of the Scottish asylums the appointment of a matron over the whole asylum, both male and female sides, rendered the analogy to the general hospital still more complete. The appointment of a male attendant to act as head of the nursing staff of the male side of an asylum had, he said, gradually fallen into disuse.

Further Steps towards the Hospital Ideal.

An increase in the numbers of the medical staff, and a more thorough study of the physical disorders associated with insanity by all the scientific methods of investigation employed by hospital physicians, are features that are intimately connected with the process of hospitalisation. So also is a higher education in the science of psychiatry, to further which diplomas in psychological medicine have recently been instituted by the universities and licensing bodies at the request of the Medico-Psychological Association. The Scottish asylums, by the advantageous preparations they have already made, are ready for a great development of the medical treatment of the insane on these scientific lines. It, however, remains a matter for surprise that the State has in the past taken so little interest in research or offered so little encouragement to investigations into the nature and the prevention of insanity, seeing that the care of the insane is so heavy a financial burden. One mental disorder alone—namely, dementia præcox—probably costs the country more in maintaining its helpless victims for life than any other single disease. It is hoped that this defect will be removed by the organisation of systematic research work in our laboratories. Lastly, the Scottish asylums are administered under an archaic code of laws, of which the parent Act was passed a few years after Sarah Gamp had been presented to the world, and medical science and the art of nursing have long since left its provisions far behind.

A Bright Outlook.

Prof. Robertson, in his conclusions, said that a broad survey of the changes recently introduced into the asylum system of Scotland can be crystallised into two ideas or formulæ. Firstly, the abolition of prison features; and secondly, the hospitalisation of the asylum; and the effects of these changes have been so great that they may correctly be described as revolutionary were it not, he reminded us, that the process, though still incomplete, has been gradual. The patients, who in former days were often unruly and even dangerous, have become so much more calm and orderly that those whose recollections go back nearly 40 years ask themselves: "Has the type of insanity changed to one with milder symptoms?" The public, of course, still imagines that every patient in an asylum is a raging maniac, but years pass without such a case being seen, because to a large extent they were the product of the treatment they formerly received. The nurses, now trained, take a more intelligent interest in their work and give more careful attention to their patients. Their status has improved, and many of them now complete their training in general hospitals. Lastly, the tone and the whole atmosphere of the institution is different. It is at once more human, more sympathetic, and more medical. This is perhaps the most striking change of all, and although it is very difficult to explain in words, its influence is all-pervading and dominant. When, then, the medical officers of asylums have been increased in number and have received a special training in psychiatry, and when the laws cease to place a prison-stigma on asylums and their inmates, and to obstruct by legal technicalities the admission and treatment of patients in the early and curable stages of mental disorder, then will we attain the exalted ideal we have cherished and that has dominated our activities. Then will the Scottish asylums become special hospitals in the true sense of the term, and take their place honourably by the side of our great general hospitals, which have served as faultless and priceless models for their imitation.

PATHOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.

A MEETING of this Society was held on July 14th and 15th in the Medical School, University College Hospital, with Prof. A. E. BOYCOTT in the chair.

Dr. W. M. CROFTON (Dublin) described an egg-glycerine medium which he had found very successful in obtaining direct growths of tubercle bacilli from sputum treated with antiformin. He also dealt with an outbreak of diphtheritic roup in fowls from which he had isolated an influenza-like bacillus, vaccines of which seemed to act preventively and curatively.

Drs. A. STOKES and J. T. WIGHAM (Dublin), in 1515 samples of serum from 772 individuals, found complete agreement between the Wassermann and Sigma reactions in 96 per cent.

Drs. J. W. BIGGER and WIGHAM (Dublin) found that complement could be kept for many days in strong (9 per cent.) salt solution and red corpuscles in formalised strong sugar solutions.

Drs. P. HARTLEY, A. J. EAGLETON, and C. C. OKELL (London) had approached the same problem by drying sera at low pressures. Antibodies were almost perfectly preserved by this method, as was the active substance in positive Wassermann sera, and complement remained unaltered for several months, after which it deteriorated. These preparations had been tested also by Prof. C. H. BROWNING and Dr. E. M. DUNLOP (Glasgow) and found very satisfactory.

Prof. E. E. GLYNN (Liverpool) demonstrated an improved form of his apparatus for automatically measuring and distributing the components of the Wassermann test.

Prof. J. S. C. DOUGLAS (Sheffield) pointed out that rather gross errors in serological tests might arise from the difficulty of completely removing the last traces of serum from a narrow pipette.

Dr. R. ST. J. BROOKS, Miss M. RHODES, and Prof. J. C. G. LEDINGHAM (London) described their experiments with the minute virus of tularæmia, a wide-spread disease of ground squirrels, jack-rabbits, &c., in California and Utah, which is transmissible to man by the blood-sucking fly Chrysops and other insects.

Dr. J. HENDERSON SMITH (Rothamsted) discussed the growth of the hypha in moulds and compared it with the growth of bacteria, higher plants, and animals. The general process was evidently very similar in all cases, but its identification with an autocatalytic process he regarded as quite unproven and unsatisfactory.

Dr. HARTLEY had examined the toxin production of a number of strains of diphtheria bacilli belonging to different serological (agglutinative) groups; the toxins were indistinguishable and were all neutralised by antitoxin prepared from any one of them.

Dr. R. SMITH (Glasgow) found that the autolysin in the blood of a case of paroxysmal hæmoglobinuria was not identical with the substance responsible for the positive Wassermann reaction in the same serum.

Prof. ROBERT MUIR (Glasgow) described the relative combining powers of ox isolysin and heterolysins for blood corpuscles.

Prof. Sir F. W. ANDREWES (London) described the presence in pasteurella cultures of two strains of bacilli, one reacting very specifically with agglutinating sera and giving rise to highly specific sera when used as antigen, while the other had more group receptors and group antigens. The differences are not permanent and may change in either direction.

Dr. D. EMBLETON (London) dealt with a filtrable culture which he had obtained from four cases of common colds, discussing especially the difficulty of being sure whether the minute stainable bodies present were live organisms or not.

Dr. J. H. DIBLE (Manchester), in swabbings from normal throats had found, in addition to Pfeiffer's bacillus, another group of hæmophilic organisms which were larger, had more active fermentative powers, and were mostly hæmolytic.

Mr. H. G. THORNTON (Rothamsted) gave an account of a group of organisms found in soil which eat phenol and another series which destroy naphthalene; they are, with one exception, very widely spread in cultivated land.

Drs. E. DALYELL, A. FELLER, H. MACKAY, and H. WIMBERGER (London and Vienna) described and demonstrated the bone lesions in rickets, pointing out that the course of the disease can be satisfactorily followed only by X ray pictures, and showing examples of rickets cured with cod-liver oil, with sunlight, and with ultra-violet light.[1]

Mr. T. R. PARSONS and Dr. E. P. POULTON (London) discussed the various indirect methods of determining the hydrogen-ion concentration of the blood and gave an account of a large number of determinations made by Hasselbach's method in various conditions associated with breathlessness, finding in some an increase in the arterial carbon dioxide, in others a rise in the fixed acidity.

Drs. G. M. FINDLAY and R. D. MACKENZIE (Edinburgh) had investigated the effect of vitamin deficiencies on the development of experimental tuberculosis. In guinea-pigs scurvy made no difference, nor was the course of infection in rats altered by deprivation of vitamins A and B except that animals deprived of A were more liable to secondary infections. The same workers had also investigated the changes in the bone marrow in avitaminoses; lack of A produces atrophy of the hæmopoietic tissue, lack of B extreme hæmorrhagic congestion with some atrophy, lack of C hæmorrhage and in long-standing cases gelatinous degeneration and atrophy.

Drs. A. PINEY and W. T. HILLIER (Birmingham) pointed out that when the marrow enlarges both erythroblastic and leucoblastic tissues are involved, though the change may essentially (e.g., pernicious anæmia, leukæmia) involve only one of them. As the result of inquiries over an extensive zoological field, they put forward the proposition that the common stem cell is the vascular endothelium, erythroblasts developing in the blood on one side and leucoblasts in the tissues on the other.

Dr. S. P. BEDSON (London) recalled that it had been shown by Ledingham and Woodcock that the nucleated thrombocytes of birds' blood were functionally equivalent to the non-nucleated mammalian platelet. He had now found that during the active regeneration of platelets nucleated forms were present in the blood of guinea-pigs and could normally be found in the marrow. Dr. Bedson had also found that the immunity which can be produced to anti-platelet serum is not due to an anti-antibody; normal sera are often effective.

Prof. J. LORRAIN SMITH and Dr. T. RETTIE (Edinburgh) had found that condensed acetaldehyde would not mordant store fat for hæmatoxylin, but acted quickly on the lipoids of fatty degeneration. Myelin can often be demonstrated by teasing up a piece of tissue in glycerine when frozen sections give negative results.

Prof. E. EMRYS-ROBERTS and Dr. H. A. HAIG (Cardiff) described a remarkable development of an insoluble brown pigment round the lipoid globules in fatty degeneration of heart muscle in diphtheria and a few other cases.

Prof. H. R. DEAN and Dr. R. A. WEBB (Manchester) in anaphylactic shock in dogs found a rapid concentration of the blood, a large fall in the polynuclear leucocytes and an outflow of nucleated red cells from the marrow; in the liver an intense engorgement with œdema of portal canals and central necrosis of liver cells; hæmorrhages in the lung and in the myocardium in one instance involving His's bundle.

Dr. A. HAWORTH (Manchester) in the same animals found a large temporary increase in blood-sugar.

Drs. C. H. KELLAWAY and S. J. COWELL (London) in experiments on the whole animal and the isolated uterus found that a dose of normal guinea-pig serum would desensitise a guinea-pig sensitised to crystalline horse serum albumin for one to four hours.

[1] THE LANCET, July 1st, p. 7.

Prof. W. E. DIXON (Cambridge) described the action of acetyl tellurium in producing fatal inflammatory œdema of the lungs by increasing the action of the right heart.

Dr. C. DE FANO (London) described the changes in the encephalitis of rabbits following the cerebral or nasal inoculation by Dr. Perdrau of the contents of herpetic vesicles, and gave a very objective demonstration of the histology and of the minute stainable bodies, some inside nerve cells, which he is inclined to connect with the virus and which resemble those found by him in human lethargic encephalitis.

Mr. C. BENNETT, Dr. J. W. S. BLACKLOCK, and Prof. BROWNING (Glasgow) showed that the granulation tissue of healing wounds treated with acriflavine is quite normal in character.

Prof. GLYNN demonstrated hypertrophy of the thyroid and atrophy of the ovaries in a dog fed on adrenal glands and correlated the changes with the assumption of male secondary sexual characters in women with cortical adrenal tumours.

Drs. W. E. GYE and E. H. KETTLE (London) showed that silica assists the growth of the tubercle bacillus by its poisonous action on the tissues providing an avascular necrotic area in which the bacilli multiply, affording an explanation of the association of miner's phthisis with silica-containing dust. They also commented on the silica content of beer, and on its recent deterioration.

Dr. A. LEITCH (London) found that if the application of tar to mice is stopped when the skin is still normal, tumours may subsequently develop as they do in shale workers and chimney sweeps who have changed their occupations.

Prof. BOYCOTT and Dr. V. R. KHANOLKAR (London) described a fairly simple method of enumerating kidney glomeruli by the use of very thick sections.

Dr. H. W. CROWE (Harrogate) demonstrated the differentiation of streptococci on his chocolate medium; Prof. EMRYS-ROBERTS, a plate method for showing hæmolytic effects; Dr. B. R. G. RUSSELL (London), tar sarcoma in the rat; Dr. N. S. LUCAS (London), an interesting series of pathological specimens from the Zoological Gardens; Mr. T. W. P. LAWRENCE (London), a number of organs of pathological interest; and Dr. P. L. SUTHERLAND (Wakefield), the lesions in the silicosis of ganister miners.

Reviews and Notices of Books.

THE POPULATION PROBLEM.

A Study in Human Evolution. By A. M. CARR-SAUNDERS. Oxford: At the Clarendon Press. 1922. Pp. 516. 21s.

Birth-Control and Population. An Essay by Colonel G. T. K. MAURICE, C.M.G., C.B.E., A.M.S. (ret.). London: The Scientific Press, Ltd. 1922. Pp. 56. 2s. 6d.

BOTH Colonel Maurice and Mr. A. M. Carr-Saunders have something to say about the problem of population, both have the good sense to descry in this problem the quantitative and the qualitative aspect, and both, when it comes to the solution, have a friendly inclination towards the mechanical control of conception. But here the resemblance ends; for while the first writer has prepared with an engaging simplicity one little round peg for every little round hole that needed filling in his argument, the second has bent most of his energy to the construction of handicraft tools with which the reader may carve pegs and holes, round, square, or oblong at his will.

Colonel Maurice's essay is no more, if no less, helpful than the majority of books and pamphlets which are appearing on this subject at the present time. For him the food-producer only of all mankind is "at base self-sufficient." If the proportion of these agriculturists is at present large enough to maintain the other inessential section of the community, the author looks forward to a time when the food will begin to run short and the hapless manufacturers will offer any number of goods to secure the almost priceless products of the soil. Instead of foreseeing this end and organising a scientific reduction of the population, instead of adopting a wise and selective system of birth-control, the public positively stimulates an increased birth-rate by "sentimental encouragement to procreation" as typified in the support of "women, usually of a mentally poor type, who have been foolish or careless enough to become unmarried mothers." No practical remedies are proposed.

Mr. Carr-Saunders's study of human evolution is, as we have hinted, a work of a very different order. The population problem is a real one, and there is still needed a great deal of scientific spade-work before it can be solved. Mr. Carr-Saunders is to be congratulated on the diligence with which he has applied himself to this very necessary if unsensational task. His book falls into three parts: the first six chapters are introductory, the next six chapters are concerned primarily with problems of quantity, and the following nine with problems of quality. In the last chapter we find a judicial summing-up. The subject is introduced by an admirable historical résumé crowded with facts and useful references. Until the sixteenth century all writers on this subject seem to have been in general agreement with the author of Proverbs that "in the multitude of the people is the king's glory; but in the want of people is the destruction of the prince"; or with Saint Thomas Aquinas, who writes in a more democratic vein: *Quae familia plus multiplicatur in prolem, amplius cedit ad firmamentum politiæ.* During the sixteenth century several writers showed a remarkable interest in these questions, and among many who still took the orthodox view there were some, especially in England, who, towards the century's close, began to express a dread of over-population. In the eighteenth century it had become commonplace to discuss population in relation to food-supply, and Malthus's famous essay was, in fact, anticipated by more than one writer in this period. The Principle of Population was published in 1798, and though it may have been based on an unsound mathematical assumption and may have contained nothing that was really new, it still has a historical value, both for the remarkable controversy which it aroused and for its influence on contemporary thought, not least upon the thought of Darwin and Wallace, who both have admitted their indebtedness. Thus both the modern interest in eugenics and the neo-Malthusian movement can properly be traced to the pleasant clergyman who cannot have foreseen the one and quite definitely disapproved of the other.

The next three chapters might have been considerably condensed were the book intended for medical readers, but for the layman studying this question an outline of the relevant facts in biology and social psychology is no doubt extremely valuable. Briefly, the writer contrasts man with "species in a state of nature," pointing out that in the former there is to be remarked a varying difference between fertility and fecundity, while in the latter reproduction is purely mechanical, and "the strength of fecundity in any species is determined by the sum of all the dangers to which the young of that species are exposed." The writer then proceeds to investigate minutely the factors which have led to this divergence in the reproductive conditions of man from those of his simian ancestry. Human fecundity is first considered and a number of interesting conclusions arrived at; then through the long pre-history of man and in the homes of the backward races the factors which have influenced fertility are critically surveyed. Having been introduced to the theory of an optimum density of population—the modern successor of the Malthusian principle—the reader is then presented with a long array of interesting data on the regulation of numbers

among primitive and historical races. At this stage (p. 308) he comes suddenly upon modern problems, which are stated without bias, though a hope, justified by the wisdom of the preceding chapters, that some measure of positive guidance would be offered in the solution of these is disappointed. The concluding chapters are concerned with problems of heredity and tradition. The evolution of satisfactory physical characters Mr. Carr-Saunders finds to depend only on germinal change. It is possible that in the future our increased control of vital processes will enable us to effect this change. But the evolution of mental character has been and will continue to be predominantly due to tradition, and mental endowment is only of importance to the individual when tradition is equalised—that is, in equal classes of the same race. The conception of tradition is a thoughtful one and the theme is soundly developed.

There are a very few minor blemishes—a cholera vibrio which has arrived by some mistaken route among the egg-producers on p. 54, an example of spurious accuracy on p. 91—but these strike the eye only by contrast with the careful attention to detail which is characteristic of the book as a whole. The value of this compilation of material is unquestionable and it forms a thought-provoking study with which no student of demography can afford to dispense.

OPHTHALMOLOGY OF GENERAL PRACTICE.

By MALCOLM L. HEPBURN, M.D. Lond., F.R.C.S. Eng., Surgeon Royal London Ophthalmic Hospital, &c. London: Cassell and Co., Ltd. 1922. Pp. 183. 12*s.* 6*d.*

THERE are very different views current as to the requirements of the general practitioner in the matter of ophthalmological training. All are agreed that a certain minimum is a necessity, and many believe that, in view of the importance of fundus conditions in the diagnosis of general disease, the general practitioner ought to be as thoroughly familiar with the ophthalmoscope as he is with the stethoscope. Mr. Hepburn, speaking from the experience of one who has himself been in general practice, is among those who make least demands in this respect, and his book contains the very minimum of what should be required. It deals only with those parts of the subject with which the majority of general practitioners are likely to be practically concerned, and even within these limits errs, if anything, on the side of omission. In the opinion of Mr. Hepburn all detailed ophthalmoscopic examination is practically impossible for the general practitioner. In most cases this is probably true, if only for economic reasons; but if a practitioner can obtain some practical training and is able to devote sufficient time to the subject, there is no reason why he should not obtain a proficiency which will stand him in good stead; and it is just those who have ambitions in this direction who are likely to purchase special books on ophthalmology. However, this work is not intended to replace a text-book for those who are making a special study of the investigation and treatment of diseases of the eye; it is meant to ensure that every practitioner, however busy, may be enabled to distinguish between the conditions which he can safely treat himself and those which he should refer to a specialist. There is no mention of toxic amblyopia, a disease with which every general practitioner ought to be familiar, especially in these days when, owing to the increasing prevalence of tobacco smoking, it appears to be on the increase and may even attack women. Nineteen pages and four coloured plates are devoted to fundus conditions, and in such brief space it would be difficult to improve on this part of the book.

Within the limits that the author has set himself he has performed his task very well indeed. Those who desire a clear exposition of the elementary facts of ophthalmology will get exactly what they want and nothing else. As to the prescribing of glasses, we are told that it consumes so much time that most general practitioners who attempt it soon give it up. Nevertheless, for the benefit of those who like to undertake it, a short but clear account of the tests for refraction is given. The only criticism of this section that we would offer is that it omits to afford any help in the determination of the axis of oblique astigmatism. Unless he is prepared to deal with these cases a doctor is hardly justified in undertaking refractions.

The illustrations, several of them coloured, are mostly good. To expect an artist to represent the difference between a real and an apparent squint, however, is to ask of him an impossible task. The book is well printed, and free from typographical errors. It should make a wide appeal.

A FRENCH MEDICAL ANNUAL.

L'Année Médicale Pratique. 1re Année. Publiée sous la Direction du Dr. CAMILLE LIAN, Médecin des Hôpitaux, Paris. Paris: A. Maloine and Fils. 1922. Pp. 506. Fr.20.

MEDICAL journals are legion in France as in other countries, and it is impossible for a practitioner, even if he has the leisure, to keep abreast of all the recent discoveries and to read all the periodicals, new medical books, or fresh editions of the old ones. The Practical Medical Annual has been published in order to present in a comparatively small volume a résumé of the medical literature of the year, especial prominence being given to those ideas which are capable of practical application in the symptomatology, differential diagnosis, ætiology, prognosis, and treatment of disease. French publications receive the greatest share of attention, but important contributions from other countries are not overlooked. On almost every page some interesting observation is recorded. Amongst these we may mention that an anti-pneumococcal serum for both Types 1 and 2 infections is used in France, and that the latter type is said to predominate there. A detailed account is given of the treatment of the leukæmias by benzol, with the indications for its use.

We commend this work to our readers. New light is frequently thrown upon familiar subjects by the altered approach of the foreign writer, and important recent continental work is often only slowly absorbed into our medical text-books.

INSPECTION OF CANNED FOODS.

The Methods Used for the Inspection of Canned Foods. Part II.: Canned Marine Products. By WILLIAM G. SAVAGE, M.D., B.Sc. Special Report No. 10, of the Food Investigation Board. London: H.M. Stationery Office. 1922. 1*s.* 6*d.*

IN Part I., published in 1920, Dr. Savage dealt with canned meats. The present report is on the same general lines as that report, but deals with canned salmon, sardines, herrings, and with crustacea. Immense quantities of these products are imported into this country and are subject to examination at the ports of entry by the commercial examiners on behalf of the trade, and by the food inspectors of the port authorities. In these examinations large numbers of tins are rejected for one reason or another. These rejections are based upon empirical methods.

The essential objects of the investigation conducted for the Food Investigation Board have been: To study to what extent the methods employed at the different ports were uniform, and to investigate as to how far the procedure for exclusion and passing of tins were justified and reliable. This was done by a study on the spot of the methods used in eight ports and a detailed examination of 150 rejected tins in the laboratory, the exact grounds for rejection being known in each case. In the laboratory each tin was subjected to a detailed and comprehensive examination by physical, bacteriological, and chemical methods. The methods of examination used by the inspectors are similar to those used for canned meats—i.e., inspection, palpation, percussion, and shaking (a form of auscultation), but the stress upon the different physical signs is different. For example, the percussion test so useful

for canned meat is of very restricted use for these classes of products. The problem is much more difficult than for canned meat owing to the diversity of the products, the varying types of containers used, and the different varieties of the same product which are canned. The value of the respective procedures is critically considered. For comparison with these 150 rejected tins 50 shop-purchased samples were examined and the report incidentally discloses that only 42 per cent. of them were sterile. The fish showed a percentage sterile of 51 and the crustacea one of only 20. This finding is not in accord with general beliefs on the subject. Owing to the diversity of the contents each different food product is considered separately and later the results are grouped together. As regards tins definitely "blown," the laboratory findings confirm that their rejection is justifiable. For tins rejected on account of an abnormal shake sound or a springy condition of the tins or even a combination of both defects, the results were far less satisfactory. Of 69 tins rejected for these defects in only 34·8 per cent. did the examination of the contents confirm the findings. In over 60 per cent. the contents were perfectly good. This was found to be true for each of the food products examined, the highest percentage correct being 50 for the lobsters and the lowest 25 for the sardines.

The report brings out that although considerable differences of standard and of judgment as regards physical defects are shown by the different inspectors at the ports, this large discrepancy between rejection and laboratory findings was common to all the inspectors. A critical consideration of the physical factors involved showed that it is impracticable to expect these crude methods of examination to yield accurate results, although better procedure would yield some improvement. The term "blown" is used in a very loose fashion, and its use is not restricted to tins showing definite gas development. Dr. Savage sums up the value of the tests by remarking that while a "blown" tin (properly interpreted) is clearly a bad tin, a tin with an abnormal shake sound or a springy top or bottom is merely a suspect sample. It is a matter of policy whether it is worth while to investigate further such tins in order to ascertain exactly which are sound and which are unfit or whether all should be rejected. He suggests that there is not sufficient justification to disturb the existing methods of selection, provided these methods are better standardised than at present. They err by rejecting good tins, but not by passing unfit ones. Tins containing the toxins of food-poisoning organisms would be missed by any methods of examination as they give rise to no changes in the containers. These tins are very few, and apart from these it is satisfactory to know that no unsound tins are likely to be passed by the present methods in vogue.

SOME THINGS THAT MATTER.

By Lord RIDDELL. London: Hodder and Stoughton. 1922. Pp. 187. 7*s.* 6*d.*

Lord Riddell in this book gives to the reader wide-ranging though usually simple advice upon the fundamentals of social behaviour—not lessons in deportment, but shrewd counsel as to the essentials of conduct, life being viewed as an arena of competition. The concluding chapters, written to give effect to an old suggestion of Viscount Morley that the best way to learn to reason would be to study the methods adopted in the law courts, will have a greater appeal to a medical audience than the earlier and more general advice on such matters as the choice of reading, the art of public speaking, or the necessity for accurate observation and phraseology. The later sections form, among other things, a useful guide to medical witnesses, for which reason in particular we commend the book to a medical public. We can assume that the average medical man has learned by the sheer circumstances of his education how to concentrate his attention along a line of argument, and how to sift a series of facts; we can assume that he has learned to observe and pick out the essential from the unessential, whether in making a diagnosis or selecting a treatment. It is a larger assumption that he has acquired the habit of making himself understood, but even so, and with all these advantages, and with every desire to help the court by his scientific evidence, he often enough is not a good witness. Lord Riddell's chapters on circumstantial evidence, on facts and inferences, on relevancy and the exercise of discrimination and judgment will make clear to a medical reader what will be expected of him when he finds himself in the witness-box. To a certain extent the systematic lectures on forensic medicine, delivered at the medical schools, cover this ground, but naturally the object of such lectures is to instruct the students on details rather than to give them any logical outlook upon principles.

An interesting chapter sets out the legal maxims which apply specially to the rules of evidence, but, as Lord Riddell points out, it is one thing to lay down general principles and another to apply them to particular cases. In fact such application is doomed to be fallacious if attempted without a thorough knowledge of all the circumstances. The maxim *Cuilibet in suâ arte perito est credendum* is the one that describes the right of the medical witness to express opinions as well as to testify to facts, but "peritus" must always be a relative term, and a badly selected expert witness will not advance the cause of truth. And this not because he himself is not a perfectly honest witness, but because the laymen at whose instance he has been summoned to appear have no full or close appreciation of the medical situation. Without a medical training it is impossible to understand the inability of a doctor to answer—and perhaps "yes" or "no" is demanded—a question which no medical man would ever have asked.

This is a sensible and interesting book. Its particular relation to medicine is, as has been said, slight, but its title is justified. Lord Riddell tells of things that really matter in language that is really comprehensible.

ROYAL DEVON AND EXETER HOSPITAL.

By J. DELPRATT HARRIS, M.D. (one of the Consulting Surgeons). Exeter: Published for the Hospital Committee by Eland Brothers. 1922. Pp. 203. 5*s.*

WE are always glad to see a new history of a hospital, for such histories are of abiding interest; they commonly form valuable records of the progress of medicine and surgery. It is a pity that there are not more hospital histories; of those dealing with London hospitals we can recall only three—namely, Sir Norman Moore's two magnificent volumes dealing with St. Bartholomew's, Dr. Galloway's History of Charing Cross Hospital, and Mr. O'Donoghue's History of Bethlehem Hospital. A history of St. George's Hospital has long been in preparation, while the records of St. Thomas's Hospital from the pen of Mr. Rendle have appeared in the *Antiquary* for 1889. As for provincial, Scottish, or Irish hospitals we cannot remember any history of any one of them; therefore the book before us is all the more welcome, especially as it is well planned and pleasantly written.

The Devon and Exeter Hospital (it was not styled "Royal" until 1899) was founded on August 27th, 1741, and first opened for patients on Jan. 1st, 1743, new style; or 1742 as it appears in the minute books under the old style when the year began in March. The chief begetter of the hospital was Dr. Alured Clarke, Dean of Exeter, who had already as Prebendary of Winchester founded "a noble public hospital" in that city. There was a great outburst of hospital building during the latter half of the eighteenth century and the former half of the nineteenth all over the three kingdoms, and the Exeter Hospital was one of the fruits of this outburst. We note that Dr. Harris on p. 2 gives the date of the foundation of St. Thomas's Hospital as 1553, whereas it should

be 1228. The 1553 "foundation" was merely a restoration of the monies grabbed by Henry VIII. at the Dissolution. Dr. Harris also says that St. Bartholomew's Hospital was "an instance of personal benevolence on the part of a body of priests such as existed in St. Bartholomew's Priory, with Rahere as the urging spirit." This is incorrect, for the hospital was founded by Rahere alone, before the priory came into existence.

But to return to the Devon and Exeter Hospital, Dr. Harris has studied the records from 1741 to 1906, and has collected a series of most interesting details about the staff, the buildings, the nurses, and various other matters. There are all sorts of little incidents noted which have a bearing upon the medical and surgical practice of the day—e.g., p. 27, in 1746 Mr. John Patch, Junr., one of the surgeons, applied for "a frock to be made for the surgeons to be worn during operations, for Mr. Weston had given serge for that purpose." We hear no more of the "frock" until 1803, when among the extraordinary expenses appears the sum of £3 5*s.* for an operating coat, but the original frock could hardly have lasted some sixty years even if, as is probably the case, it was never washed. In 1827 the following resolution was passed by the committee: "That the admission of strangers to view the body of a condemned malefactor brought to the hospital for dissection be allowed on the day of execution only."

Such were the simple recreations of our ancestors in the days before the kinema. Something worth reading is found on every page, but we have only space for one more extract. One of the physicians was a certain Dr. Samuel Budd, one of the well-known Budds of North Tawton, who served the hospital from 1850 to 1880 and died in 1885. At one time of his life he professed atheistic opinions, and when an old patient of his died his friends were surprised to hear him allude to her, saying, "Aw, she was a Christian woman I tell you Sir, she was a Christian woman, hey, hey, she left me five hundred pounds."

An excellent compilation altogether.

A TEXT-BOOK OF MIDWIFERY.

For Medical Schools and Colleges in India. By KEDARNATH DAS, C.I.E., M.D., Professor of Midwifery and Gynæcology, Carmichael Medical College, &c. With 280 illustrations. Calcutta: Thacker, Spink and Co. 1921. Pp. 477. 21*s.*

THE author has compiled this book on similar lines to his Handbook of Obstetrics, but on a smaller scale. It is divided into eight parts dealing respectively with the anatomy, physiology, and pathology of pregnancy, labour, and the puerperium, and a concluding section on obstetric surgery. The chapter dealing with the difficult subject of the mechanism of labour is a useful one, the author having taken as his authority the clear description given by Berry Hart. The description of the management of the third stage of labour is also good, and the teaching based on sound principles. As to eclampsia, the author is in favour of medical treatment combined with delivery if it can be accomplished in a conservative manner. In the discussion of cases of pregnancy in the retroverted uterus ending in incarceration, there is a tendency to advise too strenuous interference. It is surprising how few of these cases require any treatment at all if they are left alone, care being taken to empty the bladder, and we doubt if it is ever really necessary to practise laparotomy or to induce abortion as advised by the author in certain cases. The statement that a localised uterine contraction ring results from a localised contraction of Bandl's ring is not accurate, as the former may occur in any part of the uterus, and in cases where labour is not obstructed and the ring of Bandl is not unduly evident.

In his recommendations as to the treatment of cases of contracted pelvis, the author is evidently much influenced by the teaching of American obstetricians, and many of the English school would not agree either with his advocacy of pubiotomy or with his condemnation of the induction of premature labour. It is possible that the student will be left in some doubt as to what treatment he should adopt in a case of accidental hæmorrhage, as it is not made clear under what conditions vaginal plugging should be resorted to and when, if ever, the child should be delivered rapidly.

There are a number of good illustrations selected from the leading text-books of midwifery, and the index appears full and sufficient. The book should prove useful to Indian students, for whom it is written.

EMBRYOLOGY.

Traité d'Embryologie des Vertébrés. By A. BRACHET, Professor in the University of Brussels. Paris: Masson et Cie. 1921. With 567 figures. Pp. 602.

WE welcome with pleasure the appearance of this work by an authority who is able to bring to bear on his subject both experience and judgment. The book is divided into two parts, on general and special embryology respectively, and aims at connecting the facts of development, in the various groups of vertebrates, by theories and suggestions and at the establishment of general laws or principles. Professor Brachet has produced an up-to-date volume, remarkable for the maintenance of interest over the extensive area covered, and for the exceptional lucidity of his descriptions. The illustrations are clear and good, though in a few of them the reference lines and letters are not always correct. The principle on which the book is written differs somewhat from that usually adopted in English text-books, but there is a marked absence of collections of promiscuous and unrelated details.

Altogether it is a work to be thoroughly recommended to those who have to do with the subject.

THE EVOLUTION OF DISEASE.

By J. DANYSZ. Translated by F. M. RACKEMANN. New York: Lea and Febiger. 1921. Pp. 194. $2.50.

IT would be a little difficult to tell what this book is about if the sub-title did not say it is "a discussion of the immune reactions occurring in infectious and non-infectious diseases, a theory of immunity, of anaphylaxis, and of anti-anaphylaxis"; why a work dealing with these topics, comprehensive as they are, should be called "The Evolution of Disease" is nowhere revealed. Starting with a mystical and muddled conception of life centring in the "albuminoid micelle," the author reaches the conclusion that anti-anaphylactic treatment is of unquestionable efficacy in all those chronic diseases in which he has been able to apply it up to date (except organic mental diseases). The "clear and logical manner" with which, according to the translator, Dr. Danysz has traced the intermediate steps may be illustrated by his chapter on the antimony benzene compound known as luargol. On intravenous injection this produces an intravascular precipitate, and the experimental animal may die with symptoms similar to those of anaphylactic shock; luargol is therefore an "antigen," and the salt in the blood which causes the precipitation is a "normal antibody"! The idea behind the rigmarole with which the author has smothered it seems to be to establish the efficacy of specific and especially non-specific bacterio-therapy in a great variety of chronic diseases such as neurasthenia, scleroderma, dysmenorrhœa, gastroptosis, rheumatism, and the like. There is so much that is tolerably precise and of substantial interest to say about non-specific antigens—Sir Almroth Wright's remarks (see THE LANCET, May 6th) are recent and familiar—that one regrets the more that Dr. Danysz should have written a book which can do nothing for the subject except bring it into disrepute. Why such a work should be translated is a mystery.

GUY'S HOSPITAL REPORTS.

Vol. LXXII. (Vol. II., Fourth Series). London: Henry Frowde and Hodder and Stoughton. Quarterly. Single Nos., 12*s.* 6*d.*

THE last issue of this quarterly journal covers as usual a great deal of ground. In the opening article Sir Charters Symonds concludes an interesting memoir of Sir Astley Cooper, who was probably more of a personal hero to his contemporaries, and especially to his immediate followers, than any British surgeon has ever been. The hold that he maintained upon the profession, earned by his talents and unwearying industry, is indicated by the fact that he was President of the Royal College of Surgeons of England in 1827, about which date and at the age of 57 he withdrew from practice, and in 1836 was again elected President, improved health bringing him back from retirement.

Sir William Hale-White introduces a discussion on Addison's Disease, in which Dr. A. F. Hurst, Mr. E. W. Bowell, Dr. J. A. Ryle, Dr. A. W. M. Ellis, Dr. C. P. Symonds, Dr. J. H. Ryffel, Dr. E. P. Poulton, and Dr. R. D. Passey take part in accordance with their special bents. The disease was discovered in the medical school of Guy's Hospital by Addison, whose work was later reinforced by Wilks, while intensive study of the disease has since taken place at the hospital, undertaken by the late Sir Frederick Taylor, Dr. H. S. French, Prof. Gowland Hopkins, and others. Another notable contribution, valuable because of the range of its references, is that on Tumour Formation by Dr. G. W. Nicholson, lecturer in morbid histology at the hospital, who in the previous number of the Reports discussed Heteromorphoses in the Human Body. The whole compilation is up to a high standard.

CHIRURGISCHE OPERATIONSLEHRE.

Für Studierende und Aerzte. Third edition. By Prof. Dr. FRIEDRICH PELS LEUSDEN, ord. Prof. der Chirurgie und Direktor der Universitätsklinik und Poliklinik zu Greifswald.; Geh. Med.-Rat. Berlin: Urban and Schwarzenberg. 1921. Pp. 800. M.200.

THIS is a good book, characterised by painstaking attention to detail. The chapters on thoracic surgery are especially worthy of perusal by all those interested in the subject. It has reached a third edition on its undoubted merits, and calls for no systematic review from us: it will be more serviceable to indicate one or two places where, in our opinion, future editions may be strengthened. We should have liked, to give an instance, to find some mention of chronic intestinal stasis; and whatever may be the author's views on Lane's total colectomy for this condition, the operation has had sufficient trial to warrant its inclusion in any modern book of surgery. Possibly chronic intestinal stasis may not be common in Germany. Another important omission is that of the use of extension callipers for the treatment of fractures. Callipers are in vogue in the English-speaking countries, being associated with the name of Hey Groves; they are also extensively used on the continent under the name of Schmerz'sche Klemme; they should therefore be described, if only to warn the student against their indiscriminate use. The principle is the same as the extension by means of a transfixing nail through the lower fragment, known on the continent as Steinmann'sche Nagel, to which weights are applied; callipers are easier to apply and to control and are considerably less dangerous. Anatomical details given by Dr. Leusden are not always quite accurate. For example, the inner boundary of Scarpa's triangle is given as the lateral border of the adductor longus muscle.

The book is, however, worthy of a place on any surgeon's bookshelf, and may profitably be consulted by students and practitioners on any points of surgical procedure and detail. The matters to which we have called attention do not detract from the general value of the work.

SURGERY OF THE HEAD AND NECK FOR DENTISTS.

Chirurgie des Kopfes und Halses für Zahnärzte: By Dr. ERNST SEIFERT, Privatdozent für Chirurgie an der Universität Würzburg. München: J. F. Lehmann. 1922. Pp. 202. M.7.50.

Dr. Seifert states in his preface that he has proposed to put before the student of dentistry a review of the surgical affections of the head and neck which may be met with by the dentist in his practice. The conditions dealt with are not those which usually come under the dentist's jurisdiction—for these the student is expected to consult the text-books on dentistry—but are rather those with which the dentist should be familiar, but which he can only find by wading through large text-books on general or special surgery.

The author has succeeded in giving a very clear short review of the conditions of the head and neck requiring surgical interference, and his illustrations alone are almost sufficient to provide the student with the material he needs. Some of the descriptions of operations—e.g., excision of the upper jaw—would seem unnecessary, since no dentist would be called upon to perform the feat. The end-result of the operation is of interest to the dentist who has to fit the dental plate, rather than the technique of the operation. The book might have been more useful to those for whom it is intended if the space allotted to operative procedures had been occupied by short descriptions of the pathology of the condition described. Pathology is throughout neglected in this book, and although elaborate details would be out of place, a few words, with possibly a suitable illustration, on the pathological appearance accompanying the clinical description of each condition would have been an improvement.

We trust that Dr. Seifert's book will meet with the success which it deserves, for dental students cannot fail to appreciate the manner in which the subject is handled.

A DICTIONARY OF APPLIED CHEMISTRY.

Vol. III. By Sir EDWARD THORPE, C.B., LL.D., F.R.S. London: Longmans, Green and Co. 1922. Pp. 735. 60*s.*

VOLUME III. of this standard work begins with "Explosives" and ends with "Kyrofin," a trade-name for a certain antipyretic. Many of the articles are of direct interest and value to those associated with biochemistry, pharmacology, and medicine. Prof. A. Harden, head of the biochemical department of the Lister Institute, contributes an article on Fermentation, which is a masterly survey of present knowledge. A concise account is given of the origin, properties, and functions of the enzymes, their classification and nomenclature, the conditions necessary for their action, reversibility of action, &c. Dr. G. Barger, Professor of Chemistry in relation to Medicine at Edinburgh, writes, amongst other matters, on "Gums," Henbane (hyoscyamus), Iodoform and its substitutes. The odour and to some extent the poisonous properties of iodoform have given rise to a host of substitutes, all more or less inferior; certain of these substitutes and modifications are described by Dr. Barger. Jaborandi (pilocarpus) and its alkaloids are considered by Dr. H. A. D. Jowett, who has added so much to our knowledge concerning the chemical and physiological properties of the pilocarpine alkaloids. Fine chemicals generally appear to have received special attention in this volume, and alkaloids and synthetic drugs and pharmacological considerations in general are treated at greater length than in the previous editions of this important standard work.

Sir Edward Thorpe has indeed been fortunate in securing the assistance of so many contributors who are in the front rank as investigators. The dictionary is no mere compilation; the information is correct, up to date, and the length of any given article bears a relation to its economic importance.

THE UNVEILING OF THE R.A.M.C. MEMORIAL.

A TABLET erected to the memory of officers and men of the Royal Army Medical Corps was unveiled by the Duke of Connaught, Colonel-in-Chief of the R.A.M.C., in the nave of Westminster Abbey on July 13th. The congregation included relatives of the fallen and representatives of all those, medical and lay, who formed part of the great medical organisation during the war. The memorial, a white marble tablet, which has been placed in the wall on the north side of the nave close to the grave of the Unknown Warrior and almost facing the Royal Air Force Memorial window, bears the following simple inscription :—

"ROYAL ARMY MEDICAL CORPS.

"In memory of 743 officers and 6130 warrant officers, non-commissioned officers and men who fell in the Great War and whose names are enrolled in a Golden Book placed in the Chapter House."

"They loved not their lives unto the death."

Above the name of the corps is the badge of the R.A.M.C. and the date 1914–1919 in Roman figures.

After the unveiling the Duke of Connaught asked the Dean to accept a gift of £10,000 towards the Restoration Fund of the Abbey. The tablet was then dedicated, and after the blessing the Last Post and Réveillé were impressively sounded by buglers of the R.A.M.C. After this ceremony the Duke of Connaught visited the Chapter House to inspect the Golden Book, which is in the course of preparation.

Among those present were Princess Christian, Field-Marshal Lord Methuen, Sir A. Mond (Minister for Health), Captain F. Guest (Air Minister), Lieut.-General Sir Travers Clarke (Quartermaster-General), Lieut.-General Sir W. Peyton (Military Secretary), Sir Herbert Creedy and Sir Charles Harris (representing the Army Council and the War Office), Lieut.-Generals Sir John Goodwin (Director-General Army Medical Services), Sir Launcelotte Gubbins, Sir A. Sloggett, Sir A. Keogh, Sir George D. Bourke, Major-Generals Sir W. MacPherson, Sir G. Stanistreet, Sir W. Leishman, Sir A. Blenkinsop, Sir Hayward Whitehead, Sir T. Gallwey, Sir Michael Russell, S. Guise Moore, C. F. Pollock, W. O. Beveridge, Bishop Taylor Smith, Sir Havelock Charles (Indian Medical Service), Admiral Sir R. Hill (Director-General, Naval Medical Services), Sir Humphry Rolleston (President, Royal College of Physicians of London), Sir Anthony Bowlby (President, Royal College of Surgeons of England), Sir W. Wheeler (President, Royal College of Surgeons in Ireland), Sir Donald MacAlister (President, General Medical Council), Sir Archibald E. Garrod (Regius Professor of Medicine, Oxford), Mr. H. J. Waring (Vice-Chancellor of London University), the Dean of the Medical Faculty of the University of London and the deans of provincial universities, the presidents and representatives of other medical corporations, Major-General G. D. Jeffreys (Commanding London District), the Chaplain-General to the Forces, the Matron-in-Chief to Queen Alexandra's Nurses and the Territorial Army Nurses, representatives of the Red Cross Society and St. John's, and Colonel C. R. Tyrrell (Secretary) and Major E. B. Waggett (Assistant Secretary) to the Memorial Fund.

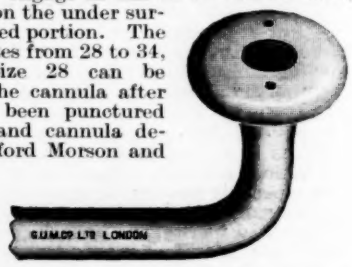
It will be remembered that a sum approaching £20,000 has been subscribed to the R.A.M.C. war memorial, £1500 of which has been earmarked for the benefit of the families and dependents of the fallen, and £10,000 for the Restoration Fund of the Abbey. The Golden Book, in which will be inscribed the names of the dead, is being prepared by Mr. Graily Hewitt, son of the well-known gynæcologist of that name. The execution of the whole memorial scheme was entrusted to a committee consisting of the Director-General, Army Medical Service (Chairman), Sir Norman Moore, Maj.-Gen. Sir W. G. MacPherson, Sir Launcelotte Gubbins, and Staff Sergeant Walton. The secretaries, Colonel Tyrrell and Major Waggett, have been very ably assisted by Captain G. D. Harding, R.A.M.C.

New Inventions.

A NEW SUPRAPUBIC SELF-RETAINING TUBE FOR BLADDER DRAINAGE.

THIS tube was devised to overcome the disadvantage of the small inlet of the Depezza tube, which has a constant tendency to become blocked. Like the Depezza, it is retained in the bladder by an expanded end. But in place of the two or more small openings which serve as the inlet to the Depezza, there is in this case one large central opening, by which means the likelihood of the lumen being obstructed by débris is reduced to a minimum. The lumen of the tube where it joins the expanded end is the widest portion. From here it tapers slightly to the point where the bend in the instrument occurs, whence the calibre continues the same throughout. This provision is made for two purposes: 1. In order that a piece of impacted débris can be easily dislodged by syringing. 2. And also that leakage may be prevented from taking place round the tube.

The tube here illustrated is introduced through a suprapubic wound into the bladder, by means of a bifid stilet, the forked end of which is passed down the lumen from the outer to the inner end, where each prong is made to engage in one of two small holes, near the margin on the under surface of the expanded portion. The tube is made in sizes from 28 to 34, French scale. Size 28 can be passed through the cannula after the bladder has been punctured with the trocar and cannula devised by Mr. Clifford Morson and Mr. G. Mothersill for introducing No. 28 Depezza. Larger sizes will not pass down the cannula and can only be introduced into the bladder through large fistulous openings, on account of the greater girth of both the tube and its expanded end.



The chief use of the smaller sizes of the instrument is to drain the bladder as a preliminary to prostatectomy, and, as is so often desirable, the patient can leave his bed within a week or so of the cystostomy operation, depending on the size of the parietal wound, and can go about in perfect comfort, for as long as is considered advisable, the tube draining into a portable rubber urinal. No. 28 is the most suitable size for this purpose, as the larger sizes are too big to fit the portable urinal. The larger sizes 32 to 34 are of special value in those cases following intra-vesical operations, where very free drainage is required, as in suprapubic prostatectomy. The self-retaining tube has special advantages, either in providing a thoroughly efficient drainage while ridding the patient of the depressing effect of the constant presence of saturated dressings over the lower abdomen, or in replacing an Irving's box; no discomfort and retarding effect to the suprapubic wound are caused by the presence of this apparatus. The tube should be removed each day at the daily dressing for cleansing and sterilisation.

The Genito-Urinary Manufacturing Company, 66, Margaret-street, London, W. 1, are the manufacturers of the instrument.

H. P. WINSBURY WHITE, M.B., Ch.B., F.R.C.S. Edin.

THE LANCET.

LONDON: SATURDAY, JULY 22, 1922.

The Ætiology of Influenza.

IN 1892 PFEIFFER discovered a small hæmophilic organism in influenza and considered it to be the causal agent of the disease. This claim was largely accepted and interest in the subject lay dormant until it was acutely aroused by the fatal pandemic of 1918–19. Since then the problem of the causation of this disease has been one of the most contended subjects before the profession: an immense amount of research and argument have been expended upon it, and the tale is yet to run. The difficulties which lie across the path of advance are in no need of exaggeration. What is influenza? It is well-nigh impossible to work at the causation of a disease which is clinically so ill-defined. Few who saw the sudden sweep of "three day fever" over the British Army in the warm summer of 1918 were prepared immediately to accept the disease as influenza. The criterion of influenza is a purely clinical one and it is almost certain that in isolated cases, and small sporadic outbreaks, the syndrome which we designate by this name is the result of infection by one of several pathogenic invaders. But with regard to the pandemics and larger epidemics, all the arguments of analogy go to show that there is one specific infective agent responsible for the disease. As to the disease itself, its symptomatology and morbid anatomy, we have two distinct conditions, albeit linked by an intergrading series of cases. There is acute influenza of the "three day fever" type, with prostration, rapid passage, and absence of complications, and there is the catarrhal respiratory disorder, with all too frequent broncho-pneumonic complications. It has yet to be finally settled if the second condition is the result of attack by a more virulent form of the causal agent than that which occasions the first, or if its severity is essentially due to complications caused by banal organisms and favoured by external conditions.

It is in this fog of uncertainty that the search for the ætiological agent has to be carried out. The accepted belief of the moment is that broncho-pneumonic influenza is primarily due to an agent which damages the lungs and creates there a *locus minoris resistentiæ* upon which secondarily invading organisms take root, and that these are largely responsible for the fatal lung lesions; but that the initial period of the disease, with its coryza, temperature, and prostration, is due to the specific influenzal organism. With regard to this specific organism there are two claimants in the field. The one is Pfeiffer's bacillus, and the other the filter-passing, anaerobic, almost invisible virus of many investigators. The view that the latter organism is the causal agent is sequential to the experiments of KRUSE upon the common cold, and was supported in the earlier phases of the late pandemic by the work of NICOLLE and LEBAILLY; since then it has had a chequered existence. Apparently confirmed by two independent sets of workers in the British Army—GIBSON, BOWMAN, and O'CONNOR, and BRADFORD, BASHFORD, and WILSON, both of whom claimed to have cultivated and transmitted the virus in series by means of the Noguchi method, it fell into disrepute when ARKWRIGHT showed that the cultures used by the second of these series of collaborators were not free from contamination. There followed a phase of reaction in which the claims of Pfeiffer's bacillus were strengthened and brought again into favour; and now, for a second time, the question of the filtrable virus has been reopened.[1]

An important résumé of personal work, bearing upon the intermediate period, has been published this week by Prof. J. MCINTOSH in the form of a special report of the Medical Research Council.[2] This bears upon the author's findings in the 1918–19 epidemic, but takes cognisance of the literature up to and including 1920. Prof. MCINTOSH is a strong protagonist of Pfeiffer's bacillus, and claims that KOCH'S postulates have been, if not entirely, at least very nearly fulfilled for this organism. It is almost universally agreed that the incidence of the organism in the disease is sufficiently high to justify acceptance of the first of these postulates on its behalf; and it is assumed that incomplete knowledge of the conditions required for the growth of the organism, to which, incidentally, the rise of doubt as to its ætiological function in the recent epidemic was directly due, has been responsible for many of the failures to isolate the bacillus in cases of the disease. The most damaging argument urged against this organism has been its failure to produce any lesions in animals corresponding to the human disease—failures which Prof. MCINTOSH early encountered in common with other workers. Certain strains, however, are endowed with considerable virulence, and CECIL and BLAKE,[3] using cultures of an exalted virulence, succeeded in producing experimental influenza and influenzal pneumonia in monkeys, which they consider to differ "in no essential respect" from the spontaneous disease in man. PARKER has recently studied the toxins formed in culture by Pfeiffer's bacillus and considers these bodies true bacterial toxins, a view with which MCINTOSH'S personal experiments cause him to agree. Prof. MCINTOSH has devoted especial attention to the properties of this toxin; in his hands it has produced not only rapid collapse and, in sufficiently large doses, death of experimental animals, but in addition the hæmorrhagic broncho-pneumonic lesions in the lungs have occurred, and these are akin to those found in human influenza, and so distributed as to suggest a selective action of the toxin upon the respiratory mucosa. A survey of all the facts at his disposal led the author of the report to the conclusion that the essential changes in influenza are due to the toxins of Pfeiffer's bacillus, which it produces whilst superficially placed in the respiratory passages, invasion of the tissues being no essential part of the disease. It is unfortunate that the present monograph has been so long delayed in the press, since it necessarily takes no cognisance of the most recent work on the supposed filtrable virus. On those experiments in support of the filter-passer theory which were published before the completion of this report, Prof. MCINTOSH makes some trenchant criticisms, believing that in some cases they were not free from suspicion of inaccuracy, and in others that the interpretations placed on the results were erroneous. His own experiments in this direction have given negative results, and though they are few in number his reputation for accurate technique is so high that this fact alone must carry weight. The last

[1] Olitsky and Gates: Journal of Experimental Medicine, 1921, xxxiii., p. 125, et seq.
[2] Studies in the Ætiology of Epidemic Influenza, by James McIntosh, M.D. Special Report Series, No. 63, Medical Research Council.
[3] Cecil and Blake: Journal of Experimental Medicine, 1920, xxxii., No. 6, p. 691.

word on the subject has not been said, but the considered views, founded on careful experiment, of such a high authority may be regarded as at least a classical contribution to the vast mass of literature on the ætiology of influenza.

Modern Laryngology.

WE publish in THE LANCET this week two addresses illustrating modern developments of laryngology. The first of these is the Semon Lecture, delivered at the Royal Society of Medicine by Dr. H. S. BIRKETT, professor of oto-laryngology at the McGill University, on the occasion of his reception from the University of London of the Semon Medal. In this address Prof. BIRKETT deals exhaustively with the trans-atlantic developments of rhino-laryngology, save that he abstains from mentioning the personal part that he himself has played therein. This deficiency was made good in warm terms by Sir JAMES DUNDAS-GRANT and Sir STCLAIR THOMSON in moving the vote of thanks of the audience to the lecturer. The second address, which is by Sir STCLAIR THOMSON, is an admirable illustration of how far operative treatment in the hands of the expert can now proceed in dealing with such a terrible disease as cancer of the larynx. The two addresses may well be read together. The one describes the rise of laryngology and the other provides a striking example of the point to which it has risen.

Prof. BIRKETT shows that the story of scientific laryngology, though its earliest chapters may be dated in the eighteenth century, commenced for practical purposes with the introduction of the laryngoscope, and his elaborate and dated record of the way in which GARCIA'S invention was received by the medical profession should be a shock to British self-complacency. For the Semon Lecturer makes it clear that to the Americans in particular, and secondly to the Germans, belongs the credit of having seen what the invention of the laryngoscope might mean, and of having patiently, exhaustively, and cleverly brought laryngoscopic work into the front of surgical procedure. Sir STCLAIR THOMSON'S address was delivered on Thursday last before the Tenth International Congress of Otology in Paris. He describes the operation of laryngo-fissure with special reference to its results in the intrinsic variety of cancer, and shows how the prospects of lasting cure in cases of cancer of the larynx are very different according to the location of the disease. When the gullet, for instance, is invaded surgical treatment is wellnigh out of the question; and it has only been considered when the cervical portion of the gullet is affected. In the larynx there is a remarkable difference in the prospect of lasting cure, according to the exact site of origin. It was proposed by ISAMBERT and KRISHABER in the last quarter of last century to divide cancer of the voice-box into two main groups, the intrinsic and the extrinsic; the former originating in the cavity of the organ and the latter on its walls. The value of this classification has been generally accepted, chiefly because of the clinical difference between these two types. A cancer starting on a vocal cord is usually slow and benign in its early history; it progresses in an indolent way and may remain limited to a cord for months, even for years, before it extends to other parts of the larynx or invades the glands. On the other hand, a cancer of the walls of the larynx—i.e., of the epiglottis, aryepiglottic folds, the arytenoids, or the posterior cricoid region, tends to progress rapidly and is often considerable before it makes its presence felt. In this situation the glands are early invaded; indeed, it is not uncommon for a secondary gland in the neck to be the first symptom to attract attention to an extrinsic laryngeal growth. With this difference of life-history, there is a very different prognosis for surgical treatment. The intrinsic type—slow in growth and limited at first to the vocal cord and neighbourhood—can be extirpated with astonishingly good results. The extrinsic type is insidious and rapid in its evolution, and early in its invasion of the glands. It was well called "a dire disease" by BUTLIN, who, with FELIX SEMON, was a pioneer in the successful surgical treatment of the more favourable, intrinsic form.

The whole subject of treatment of cancer of the larynx formed the subject of discussion at the International Congress of Otology and no doubt communications on the treatment of the extrinsic form will shortly be published, even if the only available method of treatment remains the serious operation of complete extirpation with entire loss of laryngeal voice. A wholly different picture is given by Sir STCLAIR THOMSON in regard to the treatment of the intrinsic variety, to which he limits consideration. He records every case he has operated on in the last 21 years. Of 51 cases no less than 30 are to-day alive and well at various periods up to 13 years after operation, possess a good if rough voice, and can carry on their previous vocations. Eleven are dead from other causes than cancer, and only eight have died from a local recurrence. When we remember that the operation of laryngo-fissure, by which these results have been obtained, was only established in recent times, we can congratulate Sir STCLAIR THOMSON on carrying on the pioneer work done in this country by BUTLIN and SEMON. It is a bold claim to make that an early epithelioma, if limited to a vocal cord, can be removed by laryngo-fissure without operative death-rate, with preservation of a useful voice and with every prospect of permanent freedom from recurrence, but it seems to be justified. This happy result may be looked for in at least one manifestation of cancer, if early diagnosis is made, and it is fortunate that hoarseness, slight but continuous, is a constant symptom and one that cannot be overlooked. It follows that no one, at any age, should remain hoarse continuously for any extended period—say three weeks or a month—without obtaining a careful opinion on the appearance and movement of the vocal cords. At any age such an examination may give help in the diagnosis of some remote condition; it may secure an early diagnosis of tubercle; or it may expose a malignant growth, while that growth is still in the stage of being permanently curable.

Insanity and the Criminal Law.

AS was stated in THE LANCET of July 15th, the Lord Chancellor has appointed a Committee "to consider and to report upon what changes, if any, are desirable in the existing law, practice, and procedure relating to criminal trials in which the plea of insanity as a defence is raised, and whether any, and if so what, changes should be made in the existing law and practice in respect of cases falling within the provisions of Section 2, Subsection 4 of the Criminal Lunatics Act, 1884." This is the outcome of the case of RONALD TRUE, and of the attacks made upon the Home Secretary in consequence of TRUE'S reprieve as insane, but, though that case supplied the immediate impulse, many lawyers and doctors have felt that some inquiry into the position was needed, and had been needed for a long time. The names of the Committee have been given. They are all men of experience, and some

of them are of great experience, in the administration of the criminal law. The chairman is a Lord Justice of Appeal. The others are the Attorney-General, the Solicitor-General, the Clerk of Assize of the Northern Circuit, the Senior Counsel to the Treasury at the Central Criminal Court, the Director of Public Prosecutions, and two are experienced permanent officials at the Home Office. The question whether a medical man should have been included among these in view of the subject of the inquiry—and strong representations to this end have reached us—depends to some extent upon the interpretation placed upon the terms of the reference, but many of the points to be considered will have been fitly entrusted to lawyers alone The chief exception apparently will be that of the "law" relating to the defence of insanity as distinct from the practice and procedure employed. Consideration of the "law" would appear to involve the affirming of what is known as the rule in McNaughton's case, or the making of suggestions for its alteration and possible enlargement. Any such enlargement or extension would necessarily be in directions suggested and advocated for many years by medical men experienced in the study and treatment of insanity, and here the Committee will, no doubt, avail itself of the assistance of medical witnesses. It will also, if it requires them, have official records before it of cases in which the existing law has been applied and of their after-history. The consideration of the practice and procedure will, no doubt, include in its scope the Trial of Lunatics Act, 1883, under which the self-contradictory verdict summarised as "Guilty but insane" was substituted for that of "Not guilty on the ground of insanity."

The second half of the Committee's reference is to the section of the Criminal Lunatics Act, 1884, under which TRUE was reprieved. Section 2 commences with the words, "Where a prisoner is certified in manner provided in this section to be insane, a Secretary of State may, if he thinks fit, by warrant direct such prisoner to be removed to the asylum named in the warrant," and Subsection 4 provides that, "In the case of a prisoner under sentence of death, if it appears to a Secretary of State, either by means of a certificate signed by two members of the visiting committee of the prison in which such prisoner is confined, or by any other means, that there is reason to believe such prisoner to be insane, the Secretary of State shall appoint two or more legally qualified medical practitioners, and the said medical practitioners shall forthwith examine such prisoner and inquire as to his insanity, and after such examination and inquiry shall make a report in writing to the Secretary of State as to the sanity of the prisoner, and they, or the majority of them, may certify in writing that he is insane." It has been fully pointed out with regard to TRUE that the Home Secretary has to exercise a discretionary power under this section. He is not obliged to reprieve a man certified as insane. He has, however, no doubt to be guided by the precedents established by other cases, and to consider the terms of the certificate or report of his chosen medical advisers. Presumably in discussing the practical working of this section the Committee will have before it examples of certificates given under the subsection and records of orders made in consequence of them and of the after-history of the cases so dealt with. It may have laid before it the certificate and reports upon which Mr. SHORTT reprieved TRUE. These have not been made public, but such a Committee may reasonably expect to be allowed to handle confidential documents with discretion. In any case, it seems likely that one of the chief points that will occupy the Committee here will be whether the Home Secretary should be left to exercise a sole discretion in reprieves on the ground of insanity. It is a heavy responsibility to impose upon any man even if he be supported by permanent official advisers, for these necessarily have to remain in the background while their chief is made the object of onslaughts in which political and other motives may sometimes be suspected, and in this respect the case of TRUE has afforded an example. It can hardly be said that in this branch of its inquiry the Committee, as appointed, is inadequate for its task, seeing that it can obtain the evidence of medical experts, if it requires any explanation from them, as to the examination and certifying of persons under sentence of death.

It will be seen from the above that, as has been suggested, the points which arise from the terms of the Committee's reference do not necessarily, or to any great extent, demand the presence of medical men in the body which is to determine them. The strongest argument against this view is, no doubt, that if medical witnesses are to be heard by the Committee, their evidence may lose some of its force before a tribunal of lawyers. It would, indeed, be more likely to be properly weighed and understood by members of the medical profession who would see that their colleagues fully appreciated it in all its bearings. Against this, however, it must be remembered that such men as the members of the Committee fitly represent the executive, and that the executive deals with crime as representing the people—the nation at large. If the nation has made no demand that medical opinion should prevail in such a matter as this, it must be taken as willing to entrust it to a body composed of its lawyers, all men of high ability and integrity. It can have, if it requires it, any assistance that it asks for from the medical profession, and if it prefers to lean entirely upon the legal profession in a matter affecting the public interest it must do so. At any rate, if any change in the law is the result of the present inquiry, neither the nation, nor its newspapers, nor its judges will be able to complain that the innovation has been "made in Harley-street."

THE RUSSIAN EPIDEMICS AND THEIR EXTENSION.

THE latest available intelligence regarding the spread of cholera in Russia and the Ukraine is disquieting. In the bulletin issued last week from the League of Nations Health Section the spread of the disease among the refugees at Rostov and Novorossisk is described as "catastrophic." In Odessa 3000 cases of cholera have been reported, while the returns from all the areas of the Ukraine show a further increase of cholera. It seems practically certain that the epidemic is extending over wide tracts in Russia, along the railway and water routes, and that in one case at least, at Bukarest, it has extended beyond the Russian border and caused a considerable outbreak.

The question of the international measures which can be taken to prevent the extension of this disease, and the action to be taken on the reports of the experts at the recent conference in Warsaw will, no doubt, be considered by the Council of the League of Nations which is meeting in London this week. It may be inferred also, from the very grave references to the subject which were made by Sir ALFRED MOND at the annual dinner of the Royal Society of Medicine, that the British Government is seriously considering the share which this country can and should take in international measures for the purpose. The first obvious step is to find the funds necessary to maintain the existing Epidemic Commission of the League on the western borders of Russia, and to secure that proper precautions are taken to deal with the carriage of infection from ports on the Black Sea. This action should be taken quickly, as epidemic diseases do not wait for the completion of diplomatic international formalities.

INDEX TO "THE LANCET," VOL. I., 1922.

THE Index and Title-page to Vol. I., 1922, which was completed with the issue of June 24th, will shortly be published. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2.

Annotations.

"Ne quid nimis."

A NEW PROFESSORSHIP FOR MEDICAL RESEARCH.

THE Royal Society announce that it is proposed to establish a "Foulerton Research Professorship," the holder of which is to conduct such original researches in medicine or the contributory sciences as shall be calculated to promote the discovery of the causes of disease and the relief of human suffering. The appointment will be made by the President and Council of the Society on the recommendation of a special committee of fellows called the Foulerton Research Fund Managing Committee. The professor is to devote the whole of his time to research, and the stipend to be offered is £1400 a year. The holder of a paid academic or other scientific appointment is not excluded from the professorship provided that his other duties occupy only a subsidiary portion of his time, and that they would not interfere with the discharge of the duties of the professorship as essentially a whole-time research appointment. In such a case the committee may recommend the payment of a smaller stipend, provided that the total annual income of the professor from both appointments shall be not less than £1400. The appointment in the first place will be for five years, renewable for further periods of not more than five years at a time until the professor shall have reached the age of 60. Provision will be made for superannuation on a contributory basis. One or more Foulerton Research Studentships are also to be provided. Full particulars of the conditions governing both appointments may be obtained from the assistant secretary of the Royal Society, Burlington House, London, W. 1, and applications must reach the Society before Oct. 31st, 1922. The conditions under which research students may be appointed resemble those governing the professorship, with certain modifications. The holder of a studentship will be expected to conduct researches in medicine or the contributory sciences under the supervision and control of the Foulerton Research Fund Managing Committee, to whom he will be required to report progress from time to time. This appointment will be for three years, with a maximal total tenure of six years, and according to the expressed wish of the donor, the claims of younger workers will receive special consideration. Candidates holding a paid teaching post will not be excluded, but if such a candidate be appointed the committee may recommend the payment of a stipend less than the £700 per annum, which will be the normal emolument. Members of either sex will be equally eligible for both professorship and studentship; but candidates for the latter appointment must be able to show evidence of British birth and descent. This reservation does not appear to be included in the professorial regulations, but it is to be hoped that the committee will find themselves able to select a suitable candidate from among the British applicants. The pre-war tendency to extol the foreigner and deprecate the efforts of British scientists is creeping back as a reaction from the superpatriotism of the war years, and brings with it the danger that familiarity with the claims of work done near at hand may lead, if not to contempt, at least to neglect.

THE BILE FACTOR IN PANCREATITIS.

WHAT part, if any, is played by bile in the production of pancreatitis is a much-debated and practical question. F. C. Mann and A. S. Giordano[1] have investigated it from two aspects, the anatomical and the experimental. Two anatomical mechanisms have been suggested whereby bile can be passed into the pancreatic duct. One view is that an obstruction could occur at the exit of the common bile-duct in such a manner as to convert the two ducts into a continuous channel. A study of the relationship of the common bile-duct to the pancreatic duct and their mode of entrance into the duodenum in man showed conclusively that the number of instances in which the anatomical arrangement in the relationship of the two ducts would permit bile to pass into the pancreatic duct is very small. On investigation data were obtained showing that the other possibility—that the sphincter at the duodenal end of the common bile-duct could contract and convert the two ducts into a continuous channel—is remote in most instances, since in man the sphincter is located at a point where contraction will close both ducts, but will not convert them into a continuous channel. The possibility of the conversion of the two ducts into a continuous channel by mechanical obstruction or by the action of a sphincter muscle would seem very small. Experiment showed that the pressure under which bile is excreted is too low for bile to pass into the pancreatic duct. Sterile bile, moreover, injected into the pancreatic duct at the maximal pressure that could occur in the common bile-duct, did not produce typical hæmorrhagic pancreatitis, although definite damage of the pancreas sometimes occurred. Ligation of the common bile-duct in goats does not produce acute pancreatitis, although in these animals the main pancreatic duct opens into the common bile-duct. These observations show that an anatomical and physiological basis for the theory that reflux of bile may occur in the pancreatic duct does exist, but the number of instances in which the necessary anatomical conditions are present for such an occurrence is very small, and the possibility of a physiological mechanism which can infiltrate the pancreas with sterile bile to an extent actually to produce acute pancreatitis is questionable. Moreover, bile has been found in the pancreatic duct without acute pancreatitis. The authors conclude that their observations prove that pathologists must look in other directions for the explanation of the cause of most cases of pancreatitis.

[1] Soc. for Expt. Biology and Med., xix., 1922.

DISEASES OF THE WAR.

ANOTHER volume[1] of the official history of the part played by the medical services in the war, which will eventually consist of 12 volumes under the general direction of Major-General Sir W. G. Macpherson as editor-in-chief, has just appeared. The first of the four volumes to be allocated to the general history of the medical services has already been reviewed in our columns[2]; the present issue is that of one of the two volumes wherein the diseases of the war and the medical aspect of aviation and gas warfare are to be dealt with. The editors associated with Sir W. G. Macpherson are Maj.-Gen. Sir W. P. Herringham, Col. T. R. Elliott, and Lieut.-Col. A. Balfour, and the 21 contributors, among whom are two of the editors, are all recognised authorities on the subjects they discuss. Detailed consideration of the individual articles, in which the essential matter is in most cases carefully compressed into small bulk, would be required before a true estimate of their value could be formed; but from a preliminary survey it would seem that the accounts of the outbreaks of disease, the steps taken to deal with them, and the lessons to be learnt from war experiences in civil life are admirably set out. In a preliminary chapter devoted to the general aspects of disease during the war figures are given showing that the admissions for disease in other theatres than France were 14·6 times as numerous as those for wounds (988,393 to 66,271), while even in France the admissions for disease and for wounds in 1918 were roughly as 3 to 2. The importance

[1] H.M. Stationery Office. £1 1s.
[2] THE LANCET, 1921, ii., 1286; and 1922, ii., 40.

of disease as a cause of inefficiency in an army, and the vast expense which it entails upon the fighting country, is further shown by a consideration of the cost of transport and maintenance of the patient (the average number of days that patients remained in hospital in France was 45) and that of the training and transport of the man by whom the patient has to be replaced. The wastage from minor ailments is specially emphasised. The three outstanding general conclusions drawn are that the immense effect of uncleanliness in the production of disease must be recognised in future far more than has hitherto been the case; that great service can be rendered in the preservation of the efficiency of an army by combined clinical and pathological research carried on not only at home but also in the actual area of military operations; and that the general staff should take the wastage by sickness into account as much as the wastage by wounds, consulting the army medical authorities concerning the probable loss from sickness, and the best methods of keeping it small.

THE HÆMOCLASIC CRISIS.

EARLY in this year[1] we noted a recent hepatic function test devised by P. Widal and P. Abrami, which is based on the physiological fact that after a meal of albuminoids the normal liver exercises what is called its proteopeptic function. If this function is at fault there results a hæmoclasic crisis, which is the name given by Widal to a temporary leucopenia with a relative lymphocytosis, associated with a lowered blood pressure, great changes in blood coagulability, and lowering of the refractometric index of the serum.

The administration of 200–300 g. of milk is sufficient to cause a positive reaction in those cases where liver function is impaired. In the current number of *Medical Science* a great deal of new work on this test, emanating from Vienna, Bucharest, Chemnitz, Marienbad, Bordeaux, Marseilles, Paris, and Berlin, is reviewed, though nothing has apparently yet been published in this country. P. Holzer and E. Schilling,[2] in 60 cases, all adults, obtained a positive reaction in such obvious diseases of the liver as carcinoma, jaundice, and cholelithiasis. In typhoid, paratyphoid B, scarlet fever, measles, and tuberculosis they also obtained a positive reaction, except in one case of severe tuberculosis, and one of paratyphoid B, which showed a definite leucocytosis. They also found a positive reaction in cases of heart disease, cases undergoing salvarsan treatment, and in cases of subacidity and anacidity. Several observers found that the leucopenia was the only constant element of the hæmoclasic crisis, and was not always accompanied by a fall of blood pressure or the other phenomena mentioned. According to P. Mauriac[3] the test is inapplicable in children, in whom the ingestion of very small quantities of milk is sufficient to cause a digestive leucopenia in health. The same view is held by E. Schiff and E. Stransky, who used the test in 90 infants, some of whom were normal and others were suffering from various affections, including diseases of the liver. With the exception of four cases in which a transient leucocytosis occurred, all reacted with a leucopenia 20 minutes after taking the milk. Sömjén (82 cases) draws special attention to the rapid appearance and still more rapid disappearance of the reaction. In about half the cases with a positive reaction he found that within 40 minutes the leucopenia was replaced by leucocytosis. The leucopenia ranged from 20 to 60 per cent., but did not bear a direct relation to the severity of the hepatic disturbance, as on two occasions an enormous leucopenia was observed after slight massage of the liver. Sömjén considers that the ingestion of milk and massage of the liver both act in the same way—viz., by causing a reflex stimulation of the liver, and probably of the duodenum and upper part of the jejunum. A. Powilewicz, recording 30 illustrative cases, states that the test of digestive hæmoclasia is always positive in the toxæmia of pregnancy, manifested by albuminuria, hypertension, eclamptic convulsions, and retinitis. He found that in pregnant women without any signs of toxæmia the test was positive, on the average, in one out of two cases, though less marked than in toxæmia. These apparently normal women, therefore, had a latent hepatic insufficiency which was revealed by the test of digestive hæmoclasia. Much work still remains to be done before the importance of the failure of hepatic function revealed by this simple test can be estimated.

[1] THE LANCET, 1922, i., 33.
[2] Berl. klin. Wochnschr., 1921, lviii., 1357.
[3] Jour. de méd. de Bordeaux, 1921, xcii., 373.

MUMPS.

SMALL outbursts of mumps are amazingly frequent as all school-masters and mistresses know, but there can have been few opportunities for observing mumps on a scale like that of the epidemic recorded in the *Military Surgeon* for June. The paper discusses the 231,490 cases which occurred in the United States troops during their three years of war. These cases manifested themselves mainly among the recruits from country districts who had never been even exposed to infection in childhood. But the toll this relatively slight disease took of the army was heavy. Only influenza had in 1918 a higher incidence, and in that year mumps kept 8020 men—an infantry division—constantly ineffective, each patient losing 17·4 days. The death-rate was low, about 4·5 per 1000 cases. Hippocrates it was who first described the disease as he saw it in Thasos about 400 B.C., and noticed that the parotitis did not suppurate but resolved, and that the testicles were apt to be inflamed later. In the United States army 69 cases per cent. had a bilateral parotitis, 30 per cent. were monolateral, in less than 1 per cent. the swelling was limited to the submaxillary or sublingual glands. In 11 per cent. orchitis occurred; epididymitis was rare (0·37). It is noted that there was a red papilla at the orifice of Steno's duct, and it is said that a tender spot on the ramus of the jaw just in front of the angle "is as diagnostic as Koplik's spots in measles." The blood shows lymphocytosis in uncomplicated parotitis, but polymorphonuclears increase with the onset of orchitis. The incubation period is estimated at 18 days, and the case is considered to be infectious two days before the parotitis appears. Mumps occurs chiefly in winter and spring, particularly in March. Contacts are not isolated, but the men of the infected unit are medically examined once or twice a day. The disease is attributed to a filter-passing virus, and saliva filtered through a Berkefeld filter and inoculated into cats sets up a very similar syndrome. It is apparently by the saliva that the disease is spread.

TUBERCULOSIS OF THE CERVIX.

WHILE tuberculous disease of the female genital organs is by no means uncommon, accounting probably for from 1 to 2 per cent. of all surgical gynæcological cases, tuberculosis limited to the cervix is generally admitted to be a rare pathological condition, and the report of a case from the clinic of Prof. A. B. Spalding[1] at the Stanford University Hospital is, therefore, of interest. The patient, an Italian woman of 23, who had been married for nine months but had never been pregnant, gave a seven years' history of a scanty white discharge from the vagina which since her marriage had occasionally been blood-tinged. There was no history of previous illness, and physical examination of heart and lungs was negative, although radioscopy showed some evidence of pleural thickening between the lobes of the right lung. On vaginal examination, the vagina and glands of Bartholin and Skene were found to be normal, but the cervix was raw and ulcerated, and was the seat of a granular

[1] Surgical Clinics of North America, April, 1922.

papillary growth involving the posterior vaginal wall. Although the growth bled easily it was not friable, and felt soft on palpation, the vault of the vagina being granular and soft, and the fundus in good position. Microscopic examination of a piece of the ulcer showed typical epithelial tubercle formation with giant cells in the stroma, and a diagnosis of granuloma of the cervix, probably tuberculous, was made. A course of X ray treatment, in which, however, the dosage was very small, effected no improvement, and a complete hysterectomy by abdominal route with removal of appendix as well as of right tube and ovary was subsequently performed. Microscopic examination of the parts removed showed no evidence of tuberculous disease in the appendix, Fallopian tube, or ovary, the wall of the uterus also being normal, as well as the endometrium above the internal os. The cervix showed hyperplasia of the glands with extensive tubercle formation and the presence of many giant and epithelioid cells, sections of the vaginal wall giving the same histological picture. The patient made an uninterrupted recovery, showing no evidence whatever of tuberculosis on re-examination five months later, save for some slight inflammatory reaction still persisting in the upper part of the vagina. Prof. Spalding states that though histological examination of the cervix has been made on 704 operation cases at the Women's Clinic, in only one has the diagnosis of tuberculosis of the cervix been made, although there are in the laboratory a number of specimens showing tuberculosis of the uterus above the internal os. The author discusses the probable method of tuberculous infection of the cervix, suggesting that in some cases infection may occur by direct continuity with a tuberculous endometritis. In the treatment of this condition Dr. Spalding advocates a vaginal or abdominal pan-hysterectomy, or, failing this, a high amputation of the cervix. Deep radiotherapy does not appear to have been tried.

ARTIFICIAL CLIMATO-THERAPY.

THERE are not many things left for which the ingenuity of man has not devised some artificial substitute, and investigations recently made at the Physiological Institute attached to the University Hospital in Hamburg suggest that the time may not be far distant when most, if not all, the benefits of the Alpine climate may become available in every well-equipped hospital. The beneficial effects of high altitudes may depend on one or more of the following factors: (1) Diminished atmospheric pressure; (2) diminished oxygen pressure; (3) general increase of solar radiation; (4) qualitative increase of certain of its most chemically active constituents; and (5) decreased humidity, or, to put it in another way, increased rate of evaporation of water. To distinguish between these factors, Dr. Otto Kestner [1] has experimented with dogs rendered anæmic in various ways, and he has investigated the rate of regeneration of their blood under different conditions. The regeneration of the blood was much more rapid and complete when the dogs were kept in front of an arc lamp than when they were kept away from it or under a diminished atmospheric pressure. It would thus seem that the comparatively rapid regeneration of blood in high altitudes observed in 1912 by Laquer and Weber does not depend on the barometric pressure or the oxygen content of the air, but on the distinctive characteristics of sunlight in high altitudes. Kestner has also experimented with dogs kept away from the arc lamp, but made to breathe air on which it had acted. His investigations are not yet completed, but he has already come to the conclusion that some of the effects of direct exposure can be obtained simply by breathing arc-lamp-treated air. It is not yet clear what such air contains, but it has the effect of lowering the blood pressure appreciably. This effect has also been observed after direct exposure of the body to the arc lamp or to pure sunlight. Hitherto this fall of the blood pressure has been attributed to dilatation of the cutaneous vessels provoked by the heat generated in the body, but it seems doubtful, in the light of Kestner's investigations, if this explanation is correct. For it appears that when a patient is exposed to the arc lamp, but does not breathe the air on which the lamp has acted, there is little or no fall in the blood pressure. These observations suggest that the arc lamp has at least a two-fold effect, and that by separating the one from the other, better results can be obtained than heretofore. In the past arc-lamp treatment has often had to be prematurely discontinued on account of the disturbing effects of a lowered blood pressure. In the future it may be possible for the patient to enjoy all the benefits and suffer none of the discomforts of the arc lamp by sitting in front of it, but breathing pure air. On the other hand, the patient whose blood pressure requires lowering, but whose circulatory system is not in a fit state to react to the direct action of the arc lamp, may be given arc-lamp-treated air to breathe. At present, however, these observations require verification, and until they have been verified artificial climato-therapy must be regarded rather as a hopeful possibility than as a definite achievement.

[1] Beitr. z. klin. d. Tuberkulose, 1922, vol. l.

LIGHT, HEALTH, AND EFFICIENCY.

THE relation existing between light and health is one of interest. Curves representing the amount of invalidity experienced in different months of the year and the amount of daylight present, when compared, show a marked latency in the invalidity curve, the maximum of which is reached some six weeks after the shortest day, while the minimum is even later after the longest day. Light—and closely associated with increase in light comes increase in temperature—appears to exert an influence for good upon health, so that in the summer months a resistance to disease is built up which is only slowly dissipated in the winter months. Acceptance of this view gives importance to estimations of the amount of light normally admitted to dwelling-houses and industrial establishments. The relation between daylight and industrial efficiency is more immediate and direct, as has been pointed out in work published by the Industrial Fatigue Research Board, wherein productivity in the silk industry was found to increase steadily as the days lengthened.[1] Investigations carried out by the Departmental Committee on Lighting in Factories,[2] which is still pursuing its observations, have brought out how small is the proportion of daylight admitted to most buildings; 5 per cent. is a high ratio in factories and workshops. This indoor-outdoor ratio is a matter of great significance. It appears to be the same whether the outdoor light be strong or weak; this means that if, when outdoor illumination be of an intensity of 2000 foot-candles, an indoor illumination of 20 foot-candles obtains, then, if the outdoor illumination falls to 500 foot-candles, the indoor will fall to 5 foot-candles. Observations on similar lines have recently been made in the United States, where the investigators generally find confirmation for the indoor-outdoor ratio put forward by the British committee.[3] Hence it is possible to calculate from the indoor-outdoor ratio on a bright summer day what amount of illumination may be expected in a workroom on a dull winter day of which the usual outdoor illumination is known. The American observers point out how the indoor-outdoor ratio is affected by the relation existing between window space and floor area, by cleanliness of windows, and by the sky angle of neighbouring buildings.

[1] Elton, P. M.: "A Study of Output in Silk Weaving during the Winter Months." Industrial Fatigue Research Board, Report No. 9.
[2] First Report of Departmental Committee on Lighting in Factories and Workshops, 1915.
[3] Winslow, C.-E. A., and Greenburg, L.: "A Survey of Natural Illumination in an Industrial Plant." United States Public Health Reports, April 14th, 1922.

Perusal of investigations of this type made in factories in the interest of industrial efficiency must impress the reader with the small extent to which we accept the free gift of sunlight. Factories are usually better constructed than dwelling-houses for admitting light; yet a regulation calling for the admission of 2 per cent. daylight in factories would mean a veritable revolution. In truth, a conspiracy would seem to exist to pay for artificial light rather than admit daylight with its greater value to health and efficiency.

POST-GRADUATE MEDICAL FACILITIES IN LONDON.

THE deputation received by the Ministry of Health on July 13th set forth clearly the need for further post-graduate medical facilities in London and appears to have met with sympathy, though no definite promise of help was given. The deputation consisted of Sir Charles Sherrington, President of the Royal Society; and Sir Humphry Rolleston President of the Royal College of Physicians of London; Sir Anthony Bowlby, President of the Royal College of Surgeons of England. The Fellowship of Medicine, which has done so much to further post-graduate education in London, was also represented by its President, Sir George Makins, and the British Medical Association by Sir Richard Luce. Sir Sydney Russell-Wells, until recently Vice-Chancellor of the University of London, Dr. George Blacker, dean of an undergraduate medical school, Sir Berkeley Moynihan, and Sir Robert Jones standing for provincial medicine, and Mr. H. J. Paterson, completed an influential assembly of representative men. The chief need appears to be a central bureau for coördinating the post-graduate teaching already available, and on this need the deputation were unanimous. To what extent such an institution could be made self-supporting, once it is properly started, it is difficult to estimate; at any rate some Government assistance would probably be necessary to defray its initial cost. According to Sir Richard Luce the special needs of the practitioner could be met in the three following ways: (1) by courses of instruction, theoretical and practical, at special or general hospitals; (2) by facilities being given to practitioners to be attached as clinical assistants to the special or general hospitals; (3) by lectures from approved teachers to groups of medical men at local centres. The instruction provided should be as cheap as possible and should be easy of access to the practitioner. The first step towards achieving these aims is obviously some sort of clearing house. Whether the ultimate development of the scheme will be on the lines of a new post-graduate central hospital or the subsidising of existing teaching institutions prepared to undertake this work cannot be foreseen. Anyhow, it is not seemly that London should lag behind continental centres in making adequate provision for advanced medical study, and we trust that the representations made by the deputation will result in definite action.

THE RISKS OF ARSENOBENZOL INJECTIONS.

WE referred last week to the warning issued by certain members of the Medico-Legal Society against the danger to the liver cells of arsenic administered in the form of salvarsan preparations. One authority went so far as to attribute the common failure to continue attendance at venereal disease clinics till a cure has been effected to the malaise experienced after the injections. The statistics collected by the Salvarsan Committee of the Medical Research Council, whose second Report on the Toxic Effects Following the Employment of Arsenobenzol Preparations has just been issued,[1] do not appear to lend support to this discouraging attitude, though the dangers attendant on injections are by no means minimised. The Committee, consisting of Sir Humphry Rolleston (chairman), Sir Frederick Andrewes, Prof. William Bulloch, Dr. H. H. Dale, Colonel L. W. Harrison, Dr. J. W. McNee, Major C. F. White, R.A.M.C., and Dr. F. J. H. Coutts, has found the incidence of ill-effects following the administration of arsenobenzol compounds difficult to estimate—partly because the standards adopted in reports on these vary greatly, partly because even the more striking ill-effects, such as dermatitis and acute yellow atrophy, may be delayed for a considerable time after the last injection. The problem of estimating the number of deaths directly attributable to treatment with salvarsan is even more difficult, in private practice at least, since reference to this factor on the death certificate would necessarily suggest a diagnosis of syphilis. We summarise below statistics gathered from such different sources as military hospitals and civil treatment centres in this country, and from treatment centres in other countries, though these cannot be regarded as strictly comparable. It is even misleading, except in the more pronounced ill-effects, to compare the statistics of one military hospital with those of another. The military records in general are obviously more complete than those obtainable under conditions of civilian life, and this fact, added to the higher ratio of injections to cases, probably explains the larger proportion of recorded ill-effects in these hospitals.

Table of Ill-effects recorded after Arsenobenzol Administration.

Sources.	No. of cases.	No of injections.	Jaundice.	Dermatitis.*	Cerebral symptoms.	Other comp.†	Total comp.	Total Deaths.
German { 1914	74,018	288,942	8	—	60	574	642‡	56§
inquiry { 1917	265,158	1,268,946	—	—	—	—	—	70§
British { A	4,887	39,036	13	96	1	16	126	3
military { B	18,500	125,000	62	188	—	—	250	10
hospitals { C	9,758	—	—	—	—	—	—	26§
4 British mil. hosps. combined table ..	29,946	—	187	279	14	—	480	—
Civil centres in England, in 1920	77,645	298,011	38	27	2	10	77	10

* Also other skin lesions.
† Other complications, including malaise.
‡ Some of these complications would now be considered as not connected with arsenobenzol treatment.
§ Some deaths should be deducted as having no connexion with the treatment.

From these figures it would appear that the ratio of complications to cases in military hospital A was 1 in 39, in B 1 in 74, in C unrecorded, in four other military hospitals taken together 1 in 62, and in civil centres 1 in 1000. Even assuming that this last figure is a gross understatement, it would hardly seem that the blame for the slackening off of attendance at venereal disease clinics can, with any justice, be attributed to this cause. It is pointed out in the Report that no single arsenobenzol preparation stands out as having been associated with an undue proportion of ill-effects; moreover, such serious symptoms and morbid changes as have occurred in different countries have been of the same nature. It appears further that the untoward consequences recorded must be attributed to the general constitution of the drugs of this group, and are of much more serious significance than the occasional accidents due to faulty technique, defects in manufacture or preservation of the drug, excessive dosage, or undue shortening of the interval between dosage. Certain lessons as regards dosage and frequency of administration have, it is true, been learnt from war experience. During the war period, following a definite military policy, the dosage and frequency were in some places increased over what would nowadays be recommended.

[1] H.M. Stationery Office, 2s.

The Committee believes that both dermatitis and hepatic disorders may, in part at least, be due to excessive frequency and size of the dose.

It is undeniable that there is an increasing body of evidence that the arsenobenzol preparations produce a deleterious action upon the functional efficiency of the liver, and that some degree of hepatic insufficiency is demonstrable three months after a course of the drug, thus furnishing at all events a groundwork for hepatic complications. Moreover, there are, and there always will be, certain exceptional individuals who will react to these drugs more severely than others, and in whom a dose or series of doses, harmless to the average man, may set up dangerous or even fatal complications. On the other hand, syphilis is a very serious disease, and there is a consensus of opinion among those concerned with its treatment that the arsenobenzol preparations are more efficacious than any other drugs yet available for its cure. The patient suffering from this disease and the doctor who proposes to treat him have to choose between two risks. The Committee has no doubt that, in the interests of the patient himself no less than in those of the community, the choice should be in favour of arsenobenzol treatment.

SYPHILIS OF THE SALIVARY GLANDS.

THE rarity with which the salivary group of glands is involved in the early or even in the tertiary stage of syphilis is commented upon by Drs. J. E. Kemp and J. E. Moore in a recent paper,[1] the authors stating that they were only able to find 61 cases recorded in the literature, of which 35 occurred in tertiary syphilis; and of 5600 cases of syphilis in all stages seen in the syphilis department of the Johns Hopkins Hospitals, only 4, or 0·07 per cent., presented involvement of this group. These four cases, here reported in detail, included one in a man of 36 with a chancre of the upper lip and enlargement of the submaxillary glands, mainly on the right side, the other salivary glands not being affected. With the exception of the polyadenitis there were no signs of secondary syphilis. The lesions completely disappeared after six intravenous injections of 0·4 g. arsphenamin. The second case was that of a man of 24 with gummata of parotids, nasal septum, and turbinates. Owing to the irregular attendance of this patient at the clinic only one injection of arsphenamin, 0·3 g., could be given, but even with this single dose the nasal lesions healed completely and the parotid swellings became greatly reduced. The third case, a man of 35, presented a gumma of the right parotid with sinus formation, paralysis of the terminal branches of the right seventh nerve, and periostitis of the right tibia. This patient also improved markedly in the limited period available for treatment. The fourth case was that of a girl of 23 with gumma of the right parotid, nodular syphilide of the cheek, and gumma of the right quadriceps femoris muscle. In this case all the lesions cleared up completely after three intravenous injections of 0·3 g. arsphenamin at weekly intervals. Two previous cases of a pressure paralysis of the terminal branches of the seventh nerve in parotid gland involvement have been recorded, the first by Neumann in 1894, and the second by A. Lemierre in 1920. Subjective symptoms may, however, be slight or absent where the lesion is located in the parotid or submaxillary glands, the patient only noticing a gradually increasing swelling which need be only slightly painful. Salivation is usually increased, but mastication is not interfered with as a rule unless the growth becomes fairly large. The authors comment upon the brilliant results of treatment, more especially in the gummatous type, in which complete resolution occurs, so that after a few weeks no abnormality whatever can usually be detected at the site of the lesion. In the diffuse fibrotic type of lesion, on the other hand, the tumour may not completely disappear even after intensive antisyphilitic treatment.

[1] Archives of Dermatology and Syphilology, July, 1922.

THE LITERATURE OF INDUSTRIAL HYGIENE.

THE Industrial Hygiene Section of the International Labour Office of the League of Nations is now publishing occasional bibliographical notes on recent literature dealing with industrial hygiene, which appear in the *International Labour Review*.[1] The notes are grouped under subject headings—e.g., general (including building; ventilation; gases, smoke, and fumes; factory inspection and legislation, &c.), hygiene and health in trades and occupations, personal health of the worker (from the vocational standpoint), and industrial physiology and pathology. Their publication in this form should prove useful to those interested in industrial medicine and hygiene, and in social problems generally. The June number of the *Review* also contains, in addition to the monthly notes on industrial hygiene—devoted chiefly, in this instance, to problems of overwork—a description of the work done in the direction of vocational guidance by the National Institute of Industrial Psychology of Great Britain. The following few headings from the industrial hygiene notes in the July issue indicate the wide scope of abstracted information to be obtained from the *Review*: the spraying machine in painting; natural illumination in factories; eye protections; miners' health in Japan; hygienic and sanitary conditions for linotype operators; absorption of dust; experimental plumbism, &c. The director of the London office of the League of Nations (26, Buckingham-gate, S.W.1) informs us that he would welcome the receipt of particulars regarding new publications relating to industrial hygiene, in order to enhance the value of the already considerable book lists which have appeared in the *Review*.

THE annual report for 1921 of the Chief Inspector of Factories (H.M. Stationery Office, 3*s*.) deals with Safety, Dangerous Trades, Generation and Use of Electricity, Health and Sanitation, Welfare, Industrial Diseases, Employment, Truck, and Conditions in the Glass Industry. We propose to comment on some of the questions raised in a future issue of THE LANCET.

[1] Published monthly in the United Kingdom by George Allen and Unwin, Ltd., Ruskin House, 40, Museum-street, London, W.C.

DONATIONS AND BEQUESTS.—Under the will of the late Mr. Daniel Clark the Cheltenham General Hospital and the Leeds General Infirmary will receive £5000 each, the Hospital for Poor Patients at Harrogate £2000, Dr. Barnardo's Homes and St. Dunstan's Hostel £1000 each, while the residue of the estate, amounting to some £20,000, will be equally divided between St. Bartholomew's, Guy's, the London, St. Thomas's, St. George's, King's College, University College, Charing Cross, St. Mary's, and Middlesex Hospitals.—The late Alderman Arthur Faulkner, of St. Albans, has bequeathed £500 to the London Temperance Hospital and £1000 to the National Hospital for the Paralysed and Epileptic, the bequests to take effect on the death of the testator's wife.—By the will of the late Dame Emma Cecilia Murray the testatrix left, among other bequests, £1000 to the Hospital for Sick Children, Great Ormond-street, for a "Wyndham Murray" cot; £300 each to the Cancer Hospital, Brompton, Consumption Hospital, Brompton, London Fever Hospital, Westminster Hospital, Queen Charlotte's Lying-in Hospital, and the Surgical Appliance Society (Provident); £250 to St. Peter's Hospital for Stone; £200 each to the Royal United Hospital, Bath, Mineral Water Hospital, Bath, Home and Hospital for Incurable Children, London, Royal Dental Hospital, Chelsea Hospital for Women, Order of St. John of Jerusalem in England; and £100 each to the Belgrave Hospital for Children and St. Luke's Home for the Dying.—The late Sir Alfred Pearce Gould left by will £250 to the Royal Medical Benevolent Fund and £250 to the Society for the Relief of Widows and Orphans of Medical Men.—The late Dr. Hugh Percy Noble, of Stricklandgate House, Kendal, Westmorland, who left estate of the value of over £9000, bequeathed, subject to certain life-interests, £2100 to the Westmorland County Hospital.

NEO-MALTHUSIAN AND BIRTH CONTROL CONFERENCE.

CONTRACEPTIVE TECHNIQUE.

DURING the recent Birth Control Conference held in Kingsway Hall, London, W.C., a private session for medical men and women was held under the presidency of Dr. NORMAN HAIRE, when contraceptive technique was discussed.

The PRESIDENT, in his opening address on the technique of birth control, said that the limitation of conception had in the past been attempted in three ways: (1) Abstention; (2) "Safe-period" intercourse; (3) artificial methods. As to abstention, there were people who could practise absolute abstention without harm, but in the great majority the attempt led to severe psychical if not to physical symptoms. As to "safe-period" intercourse, when ovulation was held to coincide with menstruation it was considered that fertilisation was most likely to occur just before or just after menstruation, and that the middle period was relatively safe. No definite time relation between ovulation and menstruation had, however, been established. Moreover, spermatozoa were known to be able to live in the female genital tract for considerable periods. No reliance could, therefore, be placed on the "safety" of any period.

Artificial Methods.

He stated at the outset that no perfect method was yet known, none that was at once certain and devoid of trouble. There were, however, two methods recommended by him, one of which was available to all but a very few, and the other could serve for the remainder. Before describing these, he proposed to discuss the imperfect methods in common use.

Coitus Interruptus.—This involved no expense, no apparatus, and no previous preparation, but it required self-control and was, moreover, uncertain. Further, it diminished, if it did not entirely destroy, sexual satisfaction for both men and women. There were many failures, and in 90 per cent. of cases where this method was habitually used it was accompanied by an anxiety neurosis in one or both partners. This association was too frequent to be a coincidence; moreover, it disappeared when less imperfect contraceptive methods were substituted.

Chemical Contraceptives.—These could affect spermatozoa only in the vagina and not in the uterus, into which it was probable that some were injected during the sexual orgasm. Moreover, the chemicals used were necessarily protoplasmic poisons and were likely to damage body cells as well as spermatozoa, or to do harm through absorption. The President mentioned some of the disadvantages of the commonly used pessary, composed of cocoa butter and quinine, which was supposed to melt at body temperature. In the preparation of these pessaries it was difficult to ensure equal mixing of quinine and cocoa butter, and some samples contained too little and some too much of the former. Some had such a high melting point that they did not dissolve; others dissolved too rapidly and women with excessive secretion found them unpleasant. Some of these pessaries were deliberately supplied to the public containing little if any quinine, in order to increase the profit on their sale. The mixtures of oil and quinine had much the same disadvantages. Jellies were much used in Germany; the composition of one such preparation was a mixture of starch, glycerine, distilled water, and boric acid. Another preparation by the same makers, recommended as an improvement, on analysis was found to contain no starch, a minute trace of boric acid, various vegetable organisms (showing that it had been made with impure water), and tragacanth mucilage. In vitro, a mixture of 1 per cent. lactic acid with tragacanth mucilage killed spermatozoa, but it was doubtful if this would work in vivo, and certainly it could have no effect on any spermatozoa that might be injected direct into the uterus.

Watery solutions were often used as douches, where the mechanical action helped the chemical one, but the inconvenience of douching immediately after coitus was great. A useful solution for this purpose was 1 per cent. lactic acid, vinegar 1 drachm to the pint, or permanganate 1 in 4000, in normal saline. Another means of inserting a watery solution was by means of a tampon or sponge; if this were small it was liable to be pushed into the fornices; if large, its bulk caused discomfort. In any case not an animal sponge, which defied sterilisation, but a rubber or cotton-wool tampon should be used.

Mechanical Means.—A condom or French letter was harmless, but diminished sexual satisfaction. A complete female sheath, including an apron over the external genitals, was even worse in this respect; but in cases of venereal disease, if the patient refused to abstain from intercourse, one or both methods should be used.

The President mentioned only to condemn strongly all metal button, pin,[1] or thimble pessaries. The very small cervical rubber caps were also condemned as unsuitable for general use, since they were very difficult to adjust. The small check pessary, which was attached to the cervix by suction, was relatively safe, but also difficult to apply, and impossible if the cervix was at all scarred by previous pregnancies. In another form of cervical cap the cap and ring were separable, but these were no more easy to apply.

The Best Available Contraceptive.

According to the President, the best contraceptive available was that which had been in use in Holland for 40 years and had recently been re-introduced by him into this country. It resembled a ring pessary closed in by a cup-shaped diaphragm, which fitted into the vagina with the convexity of the rubber cup towards the cervix and the concavity towards the opening of the vagina. The spring and the walls of the vagina were mutually adaptable, and the whole vault of the vagina was thus excluded. This pessary was made in a dozen sizes, and had to be fitted for the first time by a medical practitioner. It gave little inconvenience, and the male partner did not necessarily know it was there. The pessary could be inserted during the afternoon and in the morning could be removed after douching, and the douching repeated. The President had treated 200 cases during the past year, including private and the less intelligent patients who attended the welfare centre to which he was attached, and all had been successful. For the small minority whose intelligence was too low for the method to be applicable, permanent sterilisation was the only practicable alternative. Those unfit for parenthood should, he considered, submit to sterilisation. Sterilisation by means of X rays was possibly a method for the future; the question of dosage, duration, and possible damage to subsequent offspring, had not yet been worked out. The method used by him on request of the patient was, in the case of men, the removal of one or two inches of each vas deferens. Evacuation still took place after this operation, but the semen contained no spermatozoa. Steinach and his followers claimed that this operation was often followed by an improvement in general health. In women sterilisation could be best effected by cutting out portions of the Fallopian tubes. This operation was carried out in some parts of America on certain types of criminally insane women. To his knowledge 4500 cases had been so sterilised. In this country the operation was legal if carried out at the patient's expense and desire.

In conclusion, the President dealt briefly with the theory of absorption through the mucous membrane of the vagina, which he considered unsupported by evidence. Prof. A. Thompson's theory that absorption took place through the mucous membrane of the uterus was much more probable, owing to the different histological type of the mucous membrane lining this organ. At the welfare centre to which the President

[1] THE LANCET, 1921, ii., 1003.

was attached every married woman was instructed in methods of birth control, not only with a view to relieving the over-prolific poor, but for purposes of study of birth control. The President hoped to form a medical society for investigation of this subject, and asked those interested to communicate with him.

Discussion.

Sir ARBUTHNOT LANE considered that the President was doing magnificent work for the benefit of humanity. In support of the theory that material is absorbed by the vagina, he mentioned the changes that took place in the breast on oral administration of prostatic extract.—Dr. LEONARD MYERS supported Sir Arbuthnot Lane's remarks.—Dr. M. I. FINUCANE asked why the President recommended any method, when none could be regarded as harmless?

Dr. W. H. B. STODDART spoke of the psychological effects of (1) abstinence, (2) coitus interruptus, (3) the use of contraceptives. (1) Abstinence did no harm in the absence of sex stimulation, but if the same room were occupied anxiety neuroses might result. (2) Coitus interruptus nearly always caused anxiety neuroses. Symptoms were due to the fact that the patients experienced a desire which they did not wish to feel. This desire, in colloquial language, was put out of their minds but was really pushed down deeper into their minds, that is, repressed into the unconscious, and replaced by its opposite—i.e., fear, dread, or anxiety. Since emotion could be detached from one idea and attached to others, sufferers from anxiety neuroses might be frightened of other things, such as water or crowds. Dr. Stoddart described the physical signs of anxiety neuroses, largely due to abnormal endocrine action. These included air-hunger, disturbances of digestion, frequency of micturition, visceroptosis, and floating kidney, this latter being a result and not a cause of the neurosis, as was formerly thought. (3) Contraceptives were in some cases harmful. Occasionally the female suffered from a neurosis, even though she experienced sexual gratification, suggesting that the uterine membrane normally did absorb semen. In answer to a question, Dr. Stoddart said that he had administered prostatic and orchitic extract by the mouth in cases of anxiety neurosis with some success. Prof. Thompson had mentioned that after the first coitus the thyroid sometimes enlarged. Sir Arbuthnot Lane had referred to the breasts, which were liable to become nobbly in the absence of prostatic secretion, while remaining soft when it was administered orally.

Dr. KILLICK MILLARD stated that the medical profession as a whole knew only what was general knowledge about birth control. Since the large section of the public wanted information and insisted on having it, it was important that the medical man should be in a position to supply it. He had sent a questionnaire to gynæcologists and medical women throughout the country and had received 65 replies: 37 had expressed approval of birth control in some form, 15 expressed qualified approval, and 13 had expressed disapproval. Of those answering the question *re* methods recommended, 18 preferred a condom and 5 a condom or some alternate method, 3 preferred an occlusive pessary, and 1 only advised an occlusive pessary in conjunction with a quinine tampon. Inasmuch as this last was the method much advertised at present by the laity, it was obvious that since doctors appeared not to approve of this method they should take steps to supply an alternative. The President had said that many people objected to the condom. For those who did not, in Dr. Millard's opinion, this was the most effective method. It was, moreover, suitable to a large class of men who were not certain whether or not they were cured from gonorrhœa. All methods involved some self-control and some sacrifice. Two alternate methods were really required, one for male and one for female persons, whose partners were not prepared to use any preventive.

Dr. FRANCES HUXLEY congratulated the President on having covered the whole ground. She agreed with Dr. Millard that it was desirable to have a method applicable to either sex. The condom could be regarded as a safe method for the husband. She had not tried the Dutch pessary recommended by the President, but on the analogy of the ring pessary she would doubt its complete efficacy. If an ordinary ring pessary as used for prolapse were large enough to be jammed tightly against the symphysis pubis, the patient suffered discomfort. If it were smaller there was sometimes a gap at this point. She would have thought that the check pessary would have been quite successful in many cases.

At this stage a resolution was put to the meeting and passed:—

That this meeting of the medical members of the Fifth International Neo-Malthusian and Birth Control Conference wishes to point out that birth control by hygienic contraceptive devices is absolutely distinct from abortion in its physiological, legal, and moral aspects. It further records its opinion that there is no evidence that the best contraceptive methods are injurious to health or conducive to sterility.

Lord DAWSON OF PENN disapproved of bringing the subject of venereal disease into this discussion. Contraceptive methods should stand or fall as between normal healthy people; carriers of the gonococcus required separate consideration. As to methods of contraception, no ideal method had yet been discovered. The best method in any individual case depended on the degree of importance of prevention of conception. If absolute security were desired the only way of securing it was, in his opinion, the use of the penile sheath. An important criterion by which to judge a method was whether it was troublesome to apply, as in this case it would often be imperfectly applied and would fail. Some medical women had assured him that it was possible to find a pessary that could be fitted easily over the cervix and be made secure when applied, but he could not help feeling sceptical on this point. Many women had an almost sessile os uteri. The existence of tubal pregnancies proved how small an aperture could be negotiated by a spermatozoon, and it was difficult to imagine a pessary fitting so exactly that no crevice or chink would ever allow of the passage of spermatozoa. The incidence of conception might well be reduced by this means, but some men are so fertile, or so well mated, that this method of contraception would surely fail on occasion.

Lord Dawson commented also on the strong psychical element in the sex act, which could only be neglected at peril. Some men considered it a pure physical act and others went so far as to convert it into a reflex act, but this attitude was fatal to married happiness. Many women were very sensitive and all must have their desire provoked psychically. Any elaborate preparation or effort would often suffice to crush out all sentiment, and some women at least found the insertion of a pessary some hours before anticipated intercourse distasteful enough to produce this effect. Soluble quinine pessaries had the great advantage that they were so easy to use. Many marriages had been wrecked for want of understanding of the woman's attitude; she needed wooing afresh on each occasion. The use of the sheath involved a measure of sacrifice. The man had to pause before proceeding to physical consummation. This effort of self-control came early enough to be feasible, and both man and woman could without let or hindrance or anxiety enter into that complete abandonment which was essential to the complete realisation of the sex act. With coitus interruptus, on the other hand, the strain of control at the wrong time was bad physically and psychically. Reciprocity was impossible under these conditions and instead of abandonment only, followed by satisfaction, exhaustion resulted. Lord Dawson had not arrived in time to hear the President's views, but in his opinion the male sheath and the use of soluble pessaries by the women were the most satisfactory methods of contraception at present available.

Dr. GOLDSTEIN (Berlin) spoke in favour of some forms of metal pin which were inserted into the external os and reached beyond the internal os when in place.

Dr. ANTON NYSTROM, of Stockholm, also spoke.

THE OXFORD OPHTHALMOLOGICAL CONGRESS, 1922.

THE thirteenth annual meeting of the Oxford Ophthalmological Congress was held at Oxford on July 6th to 8th, the extension of the meeting to a third day being repeated because it had proved popular last year. The proceedings took place in the Department of Human Anatomy of the University Museum, kindly lent for the purpose by Dr. Arthur Thomson, Professor of Human Anatomy, whilst Keble College was again available as headquarters through the courtesy of its Warden, Rev. Dr. Kidd.

The meeting opened at 10.15 A.M. on Thursday, and in the unavoidable absence of the Master, Mr. Sydney Stephenson, the Deputy-Master, Mr. P. H. Adams, of Oxford, occupied the chair, when a discussion on the Significance of Retinal Hæmorrhages was opened by Dr. C. O. Hawthorne (London) from the point of view of the physician, and by Mr. P. H. Adams from that of the ophthalmologist. The subject was discussed by Mr. Ernest Clarke (London), Mr. T. Harrison Butler (Leamington Spa), Dr. Lundsgaard (Copenhagen), Mr. R. Foster Moore (London), Dr. A. G. Gibson (Oxford), Mr. N. C. Ridley (Leicester), Mr. J. Jameson Evans (Birmingham), Mr. D. Leighton Davies (Cardiff), Miss Marion Gilchrist (Glasgow), Dr. W. Stobie (Oxford), Mr. Matheson Mackay (Hull), Dr. Thomson Henderson (Nottingham), Mr. John Hern (Darlington), Mr. Bernard Cridland (Wolverhampton), Mr. H. M. Traquair (Edinburgh), and Mr. J. Gray Clegg (Manchester).

At the conclusion of the discussion the annual general meeting was held, when a resolution of deep regret at the absence of the Master was unanimously passed and a telegram to this effect was sent to him.

Mr. Bernard Cridland the hon. secretary, then reported that the finances of the Congress were in a satisfactory state and that 26 new members had been elected during the year. It was decided to make a second donation of ten guineas to the Illustration Fund of the Ophthalmological Society of the United Kingdom.

In the afternoon of Thursday, Mr. C. G. Russ Wood (Shrewsbury) read a paper on the Comparative Value of Artificial Illuminants embodying some valuable original work by him on the subject, and Mr. T. Stewart Barrie (Glasgow) drew attention in a paper entitled the Spontaneous Cure of Strabismus Convergens to the diminution and not infrequently the disappearance of squint in children as shown by statistics obtained in school clinics between the ages of 5 and 14. Discussion followed both papers, and the session concluded with a paper from Mr. Gray Clegg in which he gave his impressions of an International Congress of Ophthalmology held in Washington in April last, recording interesting experiences of various clinical centres in the United States and Canada.

At the close of the afternoon session a garden party was held at New College, while the annual dinner took place at Keble College.

On Friday morning the Doyne Memorial Lecture was delivered by Dr. J. Burdon-Cooper (Bath), the subject being the Ætiology of Cataract. After a fitting tribute to the late Robert W. Doyne, founder of the Congress, Dr. Burdon-Cooper reviewed the work already published by various authors on the subject, and then described his own researches in this field upon which he has been engaged since 1906. The sense of the meeting was that Dr. Burdon-Cooper was to be congratulated upon a valuable contribution to the investigation of the causes of cataract in its various forms. Dr. Burdon-Cooper was then presented with the Doyne Memorial Medal of the year.

Mr. A. L. Whitehead (Leeds) described some cases of eclipse amblyopia and their after-history, and Mr. A. L. MacCallan (Cairo) referred to the occurrence of trachoma of the lacrymal sac, whilst a paper on the dry sterilisation of instruments by Dr. C. F. Bentzen (Copenhagen) concluded the morning session.

In the afternoon of Friday members assembled at the Oxford Eye Hospital, where Sir Anderson Critchett opened a discussion on methods of operating for cataract. In an interesting address he reviewed the operations of the past and, referring to the various procedures in vogue at the present time, urged eclecticism in operating as being of the first importance. Dr. Lundsgaard described a sub-conjunctival method of extracting cataract which he had found of good service in a number of cases. Lieut.-Colonel H. Smith, C.I.E., I.M.S., late of Amritsar, spoke on the intracapsular method as performed by Dr. Barraquer, of Barcelona, and discussed the subject in general. Mr. Harrison Butler, Mr. C. Killick (Bradford), and Mr. Cridland referred to the value of cutting a bridge of conjunctiva in making the section and gave their experience of cases. The subject was further discussed by Mr. E. E. Maddox (Bournemouth), Mr. Johnson Taylor (Norwich), and Mr. A. H. H. Sinclair (Edinburgh).

On Saturday morning papers were read by Mr. Gray Clegg on Bilateral Symmetrical Congenital Korectopia and Melanosis of the Eye, Skin, and Palate; by Mr. A. S. Percival (Newcastle-on-Tyne) on (1) a Note on Light Sense, and (2) a Neglected Factor in the Ætiology of Coal-miners' Nystagmus; by Mr. Harrison Butler on Changes in Refraction, a contribution which met with discussion; and by Mr. A. Greene (Norwich), who described a useful point in squint operations, and, secondly, a case of foreign body in the lens.

In the Scientific Museum Mr. J. H. Tomlinson (London) exhibited a transillumination lamp with a rheostat to run from the main, and some interesting pathological specimens were shown by Mr. R. J. Coulter (Newport), Mr. N. Pike (Cheltenham), and Mr. Cridland. In the Commercial Museum a large collection of ophthalmic apparatus and instruments was on view.

The meeting was highly successful and well attended, and amongst members from overseas were Dr. Lundsgaard, Prof. Fritz Ask (Lund, Sweden), Dr. Bentzen, and Dr. Saunte (Odense, Denmark).

THIRD INTERNATIONAL CONGRESS OF THE HISTORY OF MEDICINE.

THIS Congress was opened on July 17th at the House of the Royal Society of Medicine by Lord Onslow, who, after briefly reviewing the outstanding landmarks in the history of medicine from the days of Hippocrates, spoke of the modern widespread application of the principles of preventive medicine. These now embraced all aspects of public health, including international coöperation in questions of health. The foreign delegates were then presented, after which an address was given by Dr. Charles Singer, President of the Congress.

The President spoke of the advantages of such a Congress as this in bringing men into contact with their colleagues working on similar lines. It also helped in penetrating behind those differences in mode of thought and approach which are of *national* origin, differences which are a greater bar to intercourse and a more fruitful source of misunderstanding than any differences of language. The real curse of Babel was not on men's tongues, but on their cerebral hemispheres. The history of medicine was something far more than a diversion or recreation; it was an important humane and philosophical discipline which covered a good half of the field of what is known as the history of science. Although the history of art, philosophy, theology, and of most other subjects found some place in our academic curricula, that of science had been always omitted. Yet science was of all subjects the one that was changing most

rapidly. The thought of our age was separated from that of previous ages by the doctrine of evolution, which had done at least as much to stimulate the studies of the historian as to guide the researches of the biologist. The whole of evolutionary teaching might be summed up in the phrase that organic products are the outcome of their history, and can only be understood when their history is known. No great system such as that of modern medicine could be understood without reference to its past. The political history of civilisation had always formed the main topic of school and university education, yet the study of the conditions which had made that civilisation possible, the origin and development of scientific thought, had until recently been neglected.

Dr. Singer proceeded to discuss the achievements in the department of the History of Medicine of some of the more eminent exponents of the subject in this country, including their President of Honour, Sir Norman Moore, and Sir Clifford Allbutt, as showing that first-class historical work could be produced in the intervals of a busy professional life. He referred also to the two other active exponents of the history of medicine, Sir D'Arcy Power and Mr. W. G. Spencer, to whose efforts the holding of this Congress was largely due. Their work had demonstrated the humane and educational value of the history of medicine. The need for special teachers of this subject had become apparent, and he hoped that before the Congress met again this need would be more adequately and more widely met throughout the civilised world.

Afternoon Session.

The afternoon session was held at the Royal College of Physicians. Sir Humphry Rolleston, welcoming the members of the Congress, conveyed the good wishes of Sir Norman Moore, formerly Harveian Librarian and President of the College, whose prominent part in promoting the study of medical history in this country had been appropriately recognised by his position as President of Honour of the Congress. Sir Humphry Rolleston recalled that Linacre, perhaps the most learned man of his time, obtained the Royal Charter for the College of Physicians on Sept. 23rd, 1518, from Henry VIII. at a time when medicine was little more than a mechanical art and there were no societies, other than religious foundations, solely devoted to the pursuit of knowledge. Linacre, anxious to raise the standard of medicine, modelled the College on the lines of the Italian Universities, Bologna and Padua; and accordingly the early Fellows of the College were learned men first and then physicians, medicine being one branch only of knowledge. The history of the College was then briefly sketched. During the first 100 years it met in Linacre's house in Knight Rider-street, and during this period John Caius, the founder of the science of anatomy in this country, did much for the College and was one of its great names. In 1614 the College moved to Amen Court, and Harvey, as Lumleian Lecturer, demonstrated the circulation of the blood; but the College was burnt down in the fire of 1666, and thus lost Harvey's museum and nearly the whole of its library. From 1669 to 1825 the College was in Warwick-lane, in a building designed by Sir Christopher Wren, the dome of which was described by Garth as "a golden globe placed high with artful skill, seems, to the distant sight, a gilded pill." This period of the College was notable for its distinguished Fellows: Sir Hans Sloane, President of the Royal Society, whose collections formed the basis of the British Museum; Mead; Garth, the author of "The Dispensary"; Arbuthnot, who invented the character of "John Bull"; Freind, the historian; Sir George Baker, who discovered that lead caused the Devonshire colic; Matthew Baillie, "the first medical writer to treat morbid anatomy as a subject by itself"; W. Heberden, of "the Commentaries"; and Thomas Young, who described the undulatory theory of light. In 1825, under the auspices of Sir H. Halford, President for 24 years, the College was installed in its present house, and since then among its eminent Fellows the names of Richard Bright, Addison, and Thomas Watson are prominent.

Dr. Arnold Chaplin, the Harveian Librarian, then gave an account of the library, enumerating some of the special treasures contained in it, and commenting on the fact that every branch of learning was represented therein.

IMPERIAL CANCER RESEARCH FUND.

THE twentieth annual report of this Fund was presented at the annual meeting on July 19th. It was announced that the gift from Lord Athelstan of £2000 a year for 10 years is to be allocated to an extension of the investigations on the infective sarcomata (dogs and fowls) with a view to defining the difference between these and true neoplasms. The donation of £4000 from Mr. and Mrs. Todman[1] will be available at the end of this month. The freemasonry between workers in research laboratories is shown by the fact that the Director has supplied material during the year to workers in Glasgow, Leicester, Vienna, Amsterdam, Buenos Aires, and to other laboratories in London.

Dr. J. A. Murray, Director of the laboratories, in his report gives a considered account of the work published during the past year and of its bearing on the main problems awaiting solution.

Vitamins and Cancer.

On the important work of Dr. W. Cramer and Dr. A. H. Drew in collaboration with Dr. J. C. Mottram (of the Radium Institute), dealing with the function of the lymphocyte and lymphoid tissue in nutrition, we commented at the time of its publication in THE LANCET.[2] Since then these workers have continued their studies on vitamin deficiency in investigating the effect of A-vitamin deficiency in rats, and have presented their results to the Royal Society.[3] Just as the diminution in lymphocytes measures the effects of B-vitamin deficiency, deprivation of A-vitamin is associated with a progressive diminution of blood-platelets. The infections, characterised by the presence of micro-organisms non-pathogenic to normally-fed animals, which an animal on a deficiency diet is so liable to contract, clear up rapidly on the addition of A-vitamin to the food, and the number of platelets returns to normal or even higher than normal. If the platelets for any reason do not increase in number, the general condition does not improve and the local infections do not regress. The Director points out that a parallel has been elicited between A-vitamin deficiency and prolonged, repeated exposure to the gamma radiation of radium. Here, however, the concomitant effect on the number of lymphocytes necessitates careful spacing and dosage, to avoid the acute symptoms which accompany this blood change. The progressive diminution in the platelets thus induced is accompanied by the symptoms characteristic of A-vitamin deficiency. Dr. Mottram's studies, experimental and clinical, go to show that the aplastic anæmia of X ray and radium workers is secondary to these changes in the lymphocytes and platelets, and is probably the consequence of similar infections with relatively non-pathogenic organisms.

On the question of the possible influence of A-vitamin deficiency on cancer the Director reports as follows:—

> Repeated attempts have been made to ascertain whether A-vitamin deficiency has any influence on the growth of malignant tumours. Unfortunately it is difficult to keep animals alive for any length of time after a severe degree of this deficiency has been established. In the experiments carried out so far the tumours take in the same percentage as in the control animals and grow progressively, even when the rats are moribund. The enhanced liability to otherwise innocuous bacteria frequently ends these experiments

[1] THE LANCET, 1922, i., 1111.
[2] THE LANCET, 1921, ii., 1202 and 1228.
[3] THE LANCET, 1922, i., 1006.

prematurely, but the results give no encouragement to the idea that withholding A-vitamin could usefully assist in the control of the growth of cancer in man. They emphasise the dangers of the insidious debility which A-vitamin deficiency induces.

The progressive atrophy of the cells and organs forming lymphocytes and blood-platelets respectively, which results from the absence of A- and B-vitamins in the food, and which causes ill-health, is also produced by exposure to X rays and radium. This is, in fact, one of the effects on the body as a whole which limit the degree of application of these rays in the treatment of new growths. If these blood changes develop, radiation must be interrupted and the patient allowed to recover. This recovery is materially assisted by an ample supply of vitamins in the diet, which stimulate the production of lymphocytes and platelets.

These observations succeed in combining the precision of animal experiments with the practical clinical application which is their ultimate aim.

In Vitro Culture of Tissues.

The progress made by Dr. Drew in the culture of normal and malignant tissues in vitro is also recorded. For continuous growth outside the body all tissues require, in addition to the ordinary food substances, certain substances only available at present in fresh embryonic extracts. Extracts of adult tissues, and possibly tumours, contain this activating principle in much lower concentration. Its nature is still unknown: it is destroyed by heating, and it cannot be replaced by glutathione, a sample of which was supplied to the Fund by Prof. F. G. Hopkins for experimental purposes.

Dr. Drew has been able to prepare a liquid medium in which tissues can be cultivated, thus eliminating the use of blood-plasma, which has been a great hindrance to progress in this kind of work. Cell-division and differentiation can proceed normally in this medium, the essential peculiarity of which is a definite colloidal condition of the calcium salts. The Director comments on Dr. Drew's work in the following hopeful terms:—

> Interesting observations have been made on the conditions which determine differentiation of normal and malignant cells. Epithelial cells when growing alone in pure culture remain undifferentiated. When connective tissue cells are added to such pure cultures, differentiation sets in with little delay, squamous epithelium producing keratin in the familiar form of concentric corpuscles, mammary epithelium producing acinous branching structures, even when originally derived from a practically undifferentiated alveolar mammary carcinoma. These experiments, which are only at their beginning, break new ground in the experimental control of the behaviour of metazoan cells.
>
> Intimately bound up with this problem is the curious fact that the continued culture in vitro of malignant cells encounters difficulties not met with in the experiments with normal tissues. If degenerative changes are to be prevented the former must be frequently transferred to fresh nutrient medium. The exhausted fluid is found to have a poisonous action on the tumour cells, but normal cells can grow, apparently without damage, in these fluids. These results give the greatest encouragement to the hope that by this method of experiment the fundamental differences between normal and malignant growth will finally be elucidated.

In this connexion, it is interesting to note that the piece of connective tissue isolated from the heart of a chick in 1912, on which we commented [4] when it was 8 years old, has now reached the tenth year of its life in vitro.[5] It is obvious that the difficulties attendant on the in vitro culture of malignant tissues are even greater than those met with in such normal cultures and the precise differences may well form the starting-point of important new work.

Respiration of Tissues, Normal and Malignant.

In another respect a comparison between the functions of normal and malignant tissues seems likely to yield useful results in the hands of workers at the Imperial Cancer Research Fund laboratories. Dr. B. R. G. Russell has continued his researches on respiration of normal and malignant tissues, in the period of survival after removal from the body. The Director recalls that Dr. Russell in earlier experiments demonstrated that rapidly growing tumours and certain normal tissues, notably kidney, showed such a gaseous exchange as indicated the combustion of carbohydrate, while slowly growing tumours gave respiratory quotients indicating the combustion of fats. When, as in recent experiments, the emulsions of the latter group were made with solutions of glucose and certain other sugars, the respiratory quotient rose nearly to unity, showing that their parenchymata were able to oxidise these carbohydrates, if present in sufficient concentration. The attempt was made by subcutaneous injection of such sugar solutions, into animals bearing tumours, to find out whether in this way the rate of growth could be influenced. No alteration was found to be produced.

Experimental Production of Cancer.

The experiments on the production of skin cancer by the external application of tar [6] are being continued by the Director. They have resulted in the production of a large number of tumours, many exhibiting a high degree of malignancy, as evidenced by spontaneous lymphatic and blood-stream dissemination.

> Dr. Russell has carried out an experiment on the effects of repeated inoculation of small quantities of coal tar in rats and mice. Two sarcomata were produced at the site of inoculation, one in a rat and one in a mouse out of 50 mice and 40 rats inoculated. Autoplastic and homoplastic transplantation were successful with both these tumours, and metastases were found in the lungs of the primarily-affected rat.

The production of a sarcoma, in contrast to the carcinomata which follow painting of the skin with tar, marks the production by the same irritant applied to epithelium and to connective tissue of a carcinoma and a sarcoma respectively, and shows clearly the inadequacy of any theory of cancer formation which fails to take into account the essential similarity of all neoplastic growths.

A final paragraph in the Director's report deals trenchantly with the recent correspondence in the lay press. He says:—

> The recent correspondence in the lay press on cancer and cancer research exemplifies a distraction with which the worker on this subject has to contend. None of the more or less distinguished writers of the letters, with the exception of H.E. the Aga Khan, displayed any acquaintance with the results of the work of the last 20 years. The facts already known as to the occurrence of cancer in different races of mankind, and in different species of animals, published in the first, second, and third scientific reports of this Fund were treated as non-existent."

It must, indeed, be disheartening for those who cannot hope to achieve much progress even in a life-time spent at cancer research, so complex are the problems involved, when they are called upon to reiterate the established and accepted facts which are the fruits of past labour. Not only laymen but even medical men working on other lines are not always fully conversant with the present position of cancer research. The scientific reports of the Imperial Cancer Research Fund are classical documents which should be studied by all those who have the trepidity to enter into controversy on one of the most intricate branches of medical research.

It is gratifying to see from the report of the Treasurer, Sir George Makins, that by rigid economy the expenditure of the past year is nearly met by the income of the Fund, and that in a time of financial stringency like the present, public-spirited donors have made it possible for the Committee to face the increasing demands of the immediate future with confidence.

[4] THE LANCET, 1920, i., 335.
[5] Soc. of Expt. Biol. and Med., xix., April, 1922.
[6] Seventh Scientific Report, and THE LANCET, 1921, ii., 1117.

LITERARY INTELLIGENCE. — Messrs Longmans, Green and Co. announce the forthcoming publication of "The Smokeless City," by Mr. E. D. Simon (Lord Mayor of Manchester) and Miss Marion Fitzgerald, with preface by Lord Newton (chairman of the Departmental Committee on Smoke Abatement).—Mr. Humphrey Milford announces the following forthcoming publications: "Respiration," by Dr. J. S. Haldane, F.R.S., a volume based on the Sillinian lectures delivered at Yale University; "Greek Biology and Greek Medicine," the first volume of a section of the World's Manuals dealing with the history of science, of which Dr. Charles Singer is general editor.

TUBERCULOSIS.

Sanatorium Reports.

A RECENT batch of sanatorium reports deserves notice. The contents of such reports may be roughly classified in two groups—bald statistics, and the discussion of methods and principles. For some years it has been the practice to publish a statistical analysis of the results achieved on discharge; these statistics are often compiled and read without much conviction. The overwhelming majority of patients are better on discharge than on admission, but the real test of the therapeutic and educational value of the sanatorium is during the first two years after discharge. If from the outset sanatoriums had denied themselves the luxury of publishing high percentages of cures and improvements on discharge, and had waited till their patients had passed the two-year test, the reaction which has now set in against sanatorium treatment would not be so violent, or justified. Some sanatorium reports still continue to publish pictures of patients wielding pick and shovel under the supervision of an able-bodied inspector. The suggestion conveyed is that giving heavy work to the frail consumptive is to make him fit for heavy work. The picture of a bankrupt quaffing a magnum of champagne would, perhaps, also suggest that, by some mysterious agency, his financial capacity was being rehabilitated. But the truth about both pictures is that expenditure is exceeding income at an extravagant rate, and it is devoutly to be hoped that in institutions for the tuberculous the practice of putting able-bodied persons to supervise the heavy and unskilled labour of consumptives will be reversed. For the clue to helping the tuberculous most effectively is to teach them occupations providing a maximum of remuneration with a minimum of effort, and the pick and shovel are inevitably associated with much physical toil and comparatively little pay.

The twenty-second report of Vejlefjord Sanatorium, published by Prof. Saugman in 1922, covers the period Jan. 1st–Dec. 31st, 1921, and shows how very far sanatorium treatment has advanced since the days when it consisted merely of graduated rest and exercise with a liberal dietary. Thoracoplastic operations were performed on 21 cases, thoracocentesis, with or without irrigations or injections of gas, in 28 cases, and thoracoscopy, with or without cauterisation of pleural adhesions, in 12 cases. The number of injections of gas into the pleural cavity was 820. Tuberculin was given in 3 cases, intravenous injections of calcium in 3 cases, quartz-mercury light treatment, with or without X ray treatment, in 21 cases, arc-light treatment in 31 cases, X ray treatment alone in 10 cases, and sun baths in 18 cases. The thirty-seventh report of the Trudeau Sanatorium deals with the rapid progress made in the diagnosis and treatment of tuberculosis during the last few years at this pioneer institution. Another sanatorium report deserving notice is the twenty-fifth annual report of the Loomis Sanatorium, New York, which covers the period Oct 31st, 1920–Nov. 1st, 1921. Questionnaires addressed to 1639 persons who had been treated in the sanatorium during the past 24 years yielded 91·5 per cent. answers. The percentage of those reported alive was 88·4, and of the living 84·7 per cent. were "in a satisfactory condition of health." It should be noted in this connexion that the average duration of treatment at the Loomis Sanatorium is much longer than in the English public sanatoriums. According to the fifteenth annual report of the King Edward VII. Sanatorium, Midhurst, covering the period July 1920–July 1921, the system of treatment consists of a "completely open-air life, regular and ordered routine, a diet sufficient and nourishing without being excessive, and a careful system of graduated rest and exercise." Apparently only three cases were considered suitable for treatment by artificial pneumothorax, and only in one of these cases was it successful. Although the therapeutic standard of Midhurst does not appear to be characterised by that diversity and contact with recent advances which have made the Vejlefjord, Trudeau, and Loomis sanatoriums rallying points for even apparently hopeless cases, it should be noted that valuable research work is being carried on at Midhurst, particularly in connexion with the Wassermann test.

A perusal of these and other recent sanatorium reports makes it evident that the ideals and standards of these institutions show remarkably great differences of level. Some are still at the pick-and-shovel level, and considering how understaffed many of these institutions are, and how little opportunity their medical officers can enjoy to take up research work or to give the skilled and individual treatment which are essential to success, the chance of raising this level is small. Those institutions which develop research in addition to carrying out ordinary hygienic treatment deserve praise, but it is well to bear in mind that research should go hand in hand with highly skilled and differentiated modern treatment, if the sanatorium is to avoid the reproach of being an institution for the impersonal study of tuberculosis rather than for its alleviation and cure in the individual.

Premature Sanatorium Discharges.

In the July number of *Tubercle* there is a paper by Dr. John B. McDougall which gives an instructive analysis of the frequency and causes of premature discharges from sanatoriums. Inquiries addressed to various sanatoriums elicited the significant fact that the percentage of premature discharges varies greatly. At one large sanatorium the percentage of irregular discharges was only 12·6; at another such institution it was 42. Clearly, with such great differences, it is not enough to trace this unsatisfactory state of affairs to general causes, such as the war, which affect the whole population. Strictly local causes must be the chief factor, and there can be little doubt that local reforms, rather than wholesale changes in the organisation of sanatorium benefit, are indicated, although, of course, the present system of sanatorium benefit is not flawless. A most useful feature of Dr. McDougall's paper is his classification of the causes which led to premature or irregular discharge. His report deals with 3494 discharges, of which only 1918, or 54·8 per cent., could be considered as regular. Of all the discharges, 5·9 per cent. were due to the patient's death, and of the irregular discharges, 24 per cent. were due to disobedience. In 26·9 per cent. no reason was given, and in 18 per cent. financial reasons were offered. Among the cases of disobedience there were only 17 females to 309 adult males—figures which do not support the popular theory that woman has lately become the protagonist of revolt. With regard to the irregular discharges for which no reason was given, Dr. McDougall suggests that, in most cases, the patients were not satisfied with the modern methods of treating pulmonary tuberculosis. He is surely right. But it should be added that methods still in use are often anything but modern. One of his most important recommendations is the provision of financial help for the patient and his family. "Under present-day conditions, the National Health Insurance subsidy of 15*s.* in the case of men, and 12*s.* for women, reducible after 26 weeks to 7*s.* 6*d.*, is not sufficient. . . ." To which there is no answer.

The Wildbolz Auto-Urine Test.

Prof. Wildbolz's hypothesis that, in active tuberculosis, certain specific bodies are excreted in the urine and can be demonstrated by an inflammatory reaction on injection into the skin, has lately been supported in several quarters. At the Communal Tuberculosis Hospital in Hanover, Dr. T. Landgraf[1] has studied the Wildbolz test in more than 100 cases of pulmonary tuberculosis. He obtained a positive reaction in 90 per cent. of "open" cases, in 80 per cent. of "closed" cases, and in 44 per cent. of the

[1] Beitr., z, Klin. d. Tuberkulose, vol. l, 1922.

cases in which the clinical diagnosis was in doubt. The reaction was invariably negative when pulmonary tuberculosis could be excluded on the clinical evidence. In Hamburg, Dr. H. Stubbe[1] has carried out the test in about 100 cases at the Eppendorf Hospital. He is convinced that in active tuberculosis the urine does contain specific antigens, the amount of which is proportional to the activity of the disease. The test promises, therefore, to be quantitative as well as qualitative, the reaction becoming weaker as recovery sets in and the quantity of antigen in the urine dwindles. As the injection gives rise to no general or focal reaction, this test is far safer than the old subcutaneous tuberculin test. Practically everyone who has investigated this test emphasises the meticulous care and finesse necessary in every detail, if findings confirmatory of Wildbolz's claims are to be obtained.

The Futility of the Exercise Temperature in the Diagnosis of Tuberculosis.

Since Penzoldt in 1899 introduced the exercise temperature as a means to early diagnosis, on the assumption that the tuberculous exhibit an abnormal instability of the temperature, this test has been extensively used. The height of the temperature after exercise, and the time it took to fall to the level at which it stood before the exercise, were regarded as important signs, and during the war this test was extensively resorted to in Germany when ex-sanatorium patients were called up for military service. The two latest investigations of this test, however, show it to be useless. Wiese's observations on the subject were reviewed in *Tubercle* for March, 1921. Dr. C. H. Würtzen and Dr. C. Holten[2] have also obtained unsatisfactory results from this test. They took the rectal temperatures of 130 persons, 20 of whom were healthy "controls." All the tuberculous persons were afebrile. The temperature was taken before and after exercise which consisted of walking on the flat for 5 to 15 minutes. The proportion of tuberculous persons who reacted with a high or a persistent rise of temperature was somewhat higher than in the case of the healthy "controls." But this was the only difference, and the exceptions were so numerous that they completely disqualified this test for the individual case. In one and the same person the time taken for an exercise temperature to fall to the pre-exercise level might be five minutes on one occasion and 40 on another. This erratic behaviour was noticed among the "controls" as well as among the tuberculous. In both classes there were several cases in which exercise was actually followed by a fall of temperature.

VENEREAL DISEASE.

The Non-Attendance of Women at Clinics.

A CRITICAL estimate of the work accomplished since the Royal Commission on Venereal Diseases sat in 1915 leads to the conclusion that a great measure of success has been achieved. Over 200 clinics are scattered about the kingdom and the manner in which male patients have availed themselves of these opportunities is encouraging. But there still remains cause for dissatisfaction which has failed to receive general recognition. The number of female patients who attend venereal clinics unfortunately represent but a lamentably small proportion of those who require treatment. If there was reason to believe that infected women who fail to attend were obtaining adequate treatment elsewhere there would be no cause for anxiety. Most of these women, however, cannot, on economic grounds, afford the services of a specialist. Some will not attempt to obtain any assistance, whilst others will seek advice at the hands of a busy practitioner, when it may well happen that the first examination made fails to reveal the presence of gonococci and the woman is dismissed with the fallacious assurance that all is well. As a matter of experience the gonococcus is generally absent from the vaginal discharge during the early days of infection, and even when it is present, the chance of discovering it in a specimen teeming with other organisms is extremely remote. Unless the examination includes an investigation of the urine, and of secretions from the urethra, cervix, and Bartholin's glands, obtained with all appropriate precautions, no diagnostic value can be attached to the failure to find the gonococcus. It should be emphasised that even when such an examination is carried out under the most stringent conditions, including the administration of provocative agents, three or more tests may have to be performed before the gonococcus is discovered.

What is the principal reason which inhibits women from attending a V.D. clinic? Two factors are involved. On the one hand, women are more sensitive to appearances and conscious of subtle social gradations, and may be deterred thereby from mingling in the medley which the waiting-room of a clinic harbours. Again, women are fearful as to the fact of their attending a clinic coming to the knowledge of their friends, neighbours, and acquaintances. Such an attitude may continue to be a substantial hindrance in respect to women attending venereal clinics. There remain two methods in which the infective female may obtain that degree of attention which the public interest demands. The teaching of venereal diseases should be made compulsory in the medical curriculum, in respect both of theoretical and practical instruction. This, if properly carried out, would ensure every practitioner having learnt the importance of these diseases and acquired the fundamentals of treatment. On the other hand, it might be well for practitioners, who have proved their ability, to be appointed by the Ministry of Health with the object of examining and treating women in their own consulting rooms. Such positions would be somewhat analogous to that at present occupied by the public vaccinator. Any medical man would be free to apply for one of the several posts allotted to his district. Just as the fact of a practitioner holding the post of public vaccinator does not cast any aspersion on the holder, so also there would be no invidiousness attaching to such an appointment as we here suggest. The names of those holding such posts would be known to the medical officer of health and other practitioners in the district. Women availing themselves of the services of these practitioners would have nothing to fear from publicity, inasmuch as there would not be anything to differentiate them from other patients. The fees would be discharged by the local authority and the Ministry of Health as in the case of patients attending ordinary V.D. clinics.

The result of such appointments would be to provide in each district a certain number of "individual private clinics," represented by the consulting rooms of the practitioners concerned. By such a method free, efficient, and confidential treatment would be secured for the patient without the disadvantages at present associated with clinics. A large number of those women who now fail to obtain adequate treatment would avail themselves of an opportunity of regaining health and of ceasing to be sources of infection.

Post-Graduate Courses on Dermatology and Venereal Diseases.

A practical and theoretical course on dermatology and one on venereal diseases will be held at the Clinique de Dermatologie et de Syphiligraphie, Hôpital St.-Louis, in the autumn, under the direction of Prof. Jeanselme, with the collaboration of a number of distinguished colleagues. Each course will include clinical and pathological instruction; the general dermatological course will begin on Oct. 2nd and the venereal diseases course on Nov. 13th, and a certificate will be given to those who have completed the courses. Further particulars may be obtained from the dermatological department of the Hôpital St.-Louis, Paris.

[2] Hospitalstidende, Feb. 15th and March 1st, 1922.

Public Health Services.

BLOCK GRANTS FOR PUBLIC HEALTH SERVICES.

PARTICULAR attention is being devoted by the Ministry of Health at the present time to the question of grants for public health services, and a special committee has been appointed to look into the matter and advise upon it. The Geddes Committee reported unfavourably upon the present system of granting 50 per cent. of expenditure in respect of the various branches of health work, and it seems clear that some other basis will have to be found. The advisability of block grants was most ably dealt with by Mr. Arthur Collins, late treasurer to the Birmingham Corporation, at the recent Infant Welfare Conference. The objections to the present system, Mr. Collins said, were threefold: (1) There was no end to the claims which might be made upon the State, and it was desirable that the State's resources should be defined. (2) At various times there had been clear indications that the system had not led to economy. It had often happened that a proposal was advocated before a cold or hostile local council on the basis that half the expense would be recovered from the State. (3) It was an open question whether any grant on a percentage basis would ever bring a local authority to overhaul the cost of its public health services as compared with other expenses. The first difficulty might be met by standardising the grants as they are at present and ascertaining what expense such local grants-in-aid demanded from the national exchequer. This would prevent continuous increase in cost, and would stabilise the divergencies between one locality and another, but it would give no encouragement to a backward local authority to begin new departures of health work and would fall hardly on those which had recently been started, and which would be unable to develop if the grant were based upon their period of infancy.

There has been, however, a rapid increase in the number of services—clinics, midwives, provision for nursing and expectant mothers, milk, health visitors, open-air and other special schools, tuberculosis—all of which could be classed broadly as maternity and child welfare work. Mr. Collins's proposal is that, instead of every authority making a separate claim for individual branches of work, a list should be drawn up, taking the previous year's record as a basis, of the number of individual cases in each class admissible for grant and of the amount allowable on each case. A block grant, amounting to approximately half the probable expenses on all classes of work, would be granted by the State, and it would be up to the local authority to allocate it as seemed best, and to provide the balance. At present there is a wide disparity between the expenditure of different localities, with the result that, according to Mr. Collins, the economical are virtually helping the extravagant, who receive a larger grant in proportion to their outlay. The block grant system would make it profitable to be economical. Mr. Collins admitted that no system would achieve all we desired; but since under the present financial conditions we must aim at securing good work at the least possible cost, his suggestion should receive careful consideration.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Leicester.

The census of midsummer, 1921, showed a population of 234,190, less by about 8500 than was anticipated. With the Registrar-General's estimate for holiday-makers the population becomes 237,900. Dr. C. Killick Millard is well satisfied with a death-rate of 12·09 and an infant mortality-rate of 85·9, and considers that there is a permanent improvement in the conditions of child life in Leicester. The birth-rate for 1921 was 21·42. The illegitimate births amounted in 1921 to 6 per cent. of the total births; on the other hand, it is satisfactory that the mortality-rate of illegitimate infants was only 103. Dr. Millard is puzzled by the fact that the De Montfort district, largely residential and with a low birth-rate, has a higher infant mortality-rate than Belgrave or Aylstone, both working-class districts with a far higher birth-rate. The pulmonary tuberculosis rate (1·16) is not satisfactory, showing an increase on the 1920 figures. A chart is given showing the great increase in the cancer death-rate since 1888 from about 45 per 100,000 of the population to 129 in 1921. The Leicester Health Committee have issued an informative leaflet to the public on the subject of cancer to which we have already referred.[1] Leicester has kept free from small-pox during the year. Dr. Millard does not approve of working up vaccination scares when small-pox is in the neighbourhood, as it was during 1921, but prefers to trust to the vaccination of contacts when a case actually occurs. Vaccinations in Leicester only amount to 4·5 per cent. of the births. Scarlet fever only caused a case fatality of 0·1 per cent. As a contrast, diphtheria had a case fatality of 8·6 per cent.

At the V.D. clinics there is a decline in new cases since 1919, more marked in the case of gonorrhœa than in syphilis. At the Poor-law infirmary there has been, on the other hand, an increase of cases of syphilis since 1919, but this has been coincident with an energetic search for cases by means of the Wassermann test. No signs of syphilis have been manifested by any children of infected mothers treated during pregnancy and some of these children are now between 2 and 3 years old. The housing shortage is acute and Dr. Millard hopes that the Government embargo on housing schemes will be quickly removed. Referring to a large road improvement scheme, Dr. Millard thinks the provision of playing fields would have offered just as much work to the unemployed and have been a greater benefit to the public health. He tells us that Leicester is ahead of most towns in the matter of allotments and that this is one of the factors helping to make it a healthy city. During the year an active campaign has been instituted in Leicester in favour of clean milk.

Coventry.

Dr. E. H. Snell in submitting his twenty-fifth report gives an interesting comparison of "then and now." In 1897 the staff consisted of himself, two inspectors of nuisances, and a boy clerk. One of his early recommendations—a public abattoir—has not even yet been carried out. Coventry became a water-carriage town in the days of Dr. Snell's predecessor, and the privy middens in the area, added in 1899, have been since converted. Between 1897 and 1921 the population of the city has doubled; the birth-rate has decreased by 30 per cent., the death-rate by 40 per cent., and the infant mortality-rate has been halved. The population at the census of 1921 was 128,205, and during that year the birth-rate was 22·1, the death-rate 10·2, the infant mortality-rate 79·3, the phthisis death-rate 0·87, and the death-rate from other forms of tuberculosis 0·23. A table on p. 29 shows the marked improvement in the infant mortality-rate since 1905; all the improvement has been in the last 11 months, the neo-natal death-rate having remained stationary. The hot, dry summer of last year had very little effect in increasing the infant deaths from diarrhœa, and Dr. Snell thinks it probable that the increasing use of dried milk for hand-fed babies avoids the dangers inherent in fresh milk in the hot weather. It has not been possible to close "unfit houses" during the year owing to the absence of alternative accommodation for displaced tenants. The school reports contain an interesting account of the Corley Camp open-air (residential) school. Classes for "stammerers" on the Berquand system have given satisfactory results.

Ilford.

The net estimated population (excluding the inmates and staff of the Claybury and West Ham Mental Hospitals) of Ilford for 1921 was 81,567. The

[1] THE LANCET, 1922, i., 1030.

birth-rate was 18·3; the death-rate 9·2; the infant mortality-rate 50·9; and the diarrhœa-rate under 2 years 6·0. Dr. A. H. G. Burton says he will be satisfied if these figures can be maintained, and thinks the infant mortality-rate has probably reached the lowest possible point considering our present knowledge of the problems involved. In this connexion we note that 36 of the 76 infant deaths are ascribed to congenital debility. The favourable infant mortality-rate is all the more remarkable when we realise that 38 illegitimate infants provided 10 of the deaths, giving an infant mortality-rate of 263 for illegitimate infants. The Ilford council has now made a satisfactory arrangement for linking up the work of the infant life protection visitor of the Romford board of guardians. Houses accommodating foster-children are visited by the sanitary inspectors, and the foster-children are to be brought to the nearest infant welfare centre. The Essex County Council has terminated the agreement for treating small-pox cases from Ilford and this action necessitates a new arrangement; this council conducts a tuberculosis dispensary at Ilford and arrangements have been made for dental treatment. A local V.D. propaganda committee, supported by small grants from the county council and Ilford council, has arranged lectures during the year to both men and women, and also film exhibitions. A satisfactory start has now been made in the provision of home nursing for Ilford, but the district is badly off for midwives. There is still a good deal of pressure on housing accommodation, a local census showing that 1123 houses contained two or more families. 275 houses of the Ilford council scheme have been occupied during the year, and 62 houses have been privately built. The school report shows that of 6486 children inspected by the dentist, 66 per cent. were found to require treatment, and that only 50 per cent. of these accepted it. There is an interesting report by the area organiser of physical training, which records the good effect of remedial exercises in some cases of lateral curvature.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Commdr. J. E. H. Phillips is placed on Retd. List with the rank of Surg. Capt.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. and Bt. Col. R. S. Hannay relinquishes the temp. rank of Col.

Lt. Col. E. W. Siberry and Maj. M. F. Foulds retire on ret. pay.

Capt. H. R. L'Estrange is placed on the half-pay list on account of ill-health.

TERRITORIAL FORCE.

Capt. C. Webb-Johnson to be Maj.

The following officers relinquish their commns. and retain their rank except where otherwise stated: Capts. S. R. Foster, H. A. Macmillan (granted the rank of Maj.), A. S. Hebblethwaite, and W. J. F. Craig.

The undermentioned officers, having attained the age limit, are retired and retain their rank except where otherwise stated: Lt.-Col. C. Douglas; Majs. J. McD. Nicoll, J. P. Milne, and F. J. Warwick; Capts. T. Graham (granted the rank of Maj.), G. H. Spencer (granted the rank of Lt.-Col.), E. E. B. Landon, W. Smith, H. Stonehouse, and W. T. Harkness (granted the rank of Maj.).

ROYAL AIR FORCE.

Medical Branch.—The undermentioned are granted permanent commns.: A. Briscoe, T. Montgomery, G. H. H. Maxwell, and S. E. Elphick to be Flight Lts.

R. Boog Watson to be Flying Officer (since promoted).

The undermentioned Flight Lts. are transferred to the Reserve, Class D. 2: W. A. Malone, J. P. Wells, and C. H. Young.

THE ROYAL VICTORIAN ORDER.

Surg. Commdr. A. C. W. Newport, R.N., H.M.S. *Renown*, has been promoted to Commdr.; and Surg. Lt.-Commdr. H. E. Y. White, R.N., H.M.S. *Renown*, has been appointed a Member of the Fourth Class of the Royal Victorian Order.

Correspondence.

"Audi alteram partem."

SOME LESS KNOWN METHODS OF ARSENICAL POISONING.

To the Editor of THE LANCET.

SIR,—When associated for a period with the office of the chemical examiner to the Government of India, Madras Presidency, as pharmacologist and physio-dynamical expert, I had occasion to trace the manner of administration of arsenic in 11 obscure cases, in which the presence of the drug was established in organs submitted for chemical analysis. Nine of these deaths proved to be due to koyahism, and only the discovery of the death-lamp of the Pshaloos furnished the clue to the solution of the other two remaining cases. The ancient belief in arsenic as a sustainer of the failing powers of sexual virility is well known; in the East the drug is still called "kalidhan yeevah" (i.e., the elixir of life), and the invasion of Europe by the Saracens and Moors bore fruit in the spread of this belief in the Western world. The belief in amulets, charms, and philtres found a large currency in mediæval times, and most of the love-philtres were undoubtedly compounded of arsenic. It behoves us, therefore, to extend our acquaintance with koyahism, which in the majority of cases is not resorted to until after the forty-seventh year of life, although deaths from koyahism have been noticed at earlier ages. Mogul historians tell us that Phshoraub, the Kurdo-Turanean invader of Persia, mythologically slain by the Persian chief Rusthom, died at the early age of 24 years from Pshaloan koyahism; so likewise koyahism accounted for the death of "Zhenish Khan, the slave-favourite and General of Tamur Lenk," who died at the age of 37 years, 18 months after he had built his famous pyramid of skulls at Ghazi. The death of Alexander the Great has likewise been attributed to koyahism, and he died at the age of 23 years.

The two forms of koyahism current in Eastern lands are:—

(*a*) ***Koyah dhaurwah***, or graduated administration of arsenic mixed with the chlorophyl of plants in dry powder form. This use of chlorophyl as an antidote to arsenical poisoning deserves to be further studied and elaborated. Among the Pshawallee tribes that inhabit the Dhaulean Terai, the koyah dhaurwah contains another ingredient—namely, goats' blood.

(*b*) ***Koyah petharah***, or yeast-arsenic. The development of a strain of yeast plant by Faex-culture upon a medium composed of palmera juice (toddy) mixed with arsenic is a trade followed only by the Dravidean priesthood; these Dravs have the monopoly of the production of this form of koyah.

It is singular that the number of deaths due to genuine koyahism is extremely small. Only when amateurs in this line attempt to concoct their own potions of arsenic from the crude drug itself that such deaths attain to prominent notice. It is, therefore, advisable that the genuine methods of "koyah" manufacture be investigated; for "koyah dhaurwah" and "koyah petharah" have been of great value in malarial regions.

Peedhal is another organo-therapeutical product of arsenic, in which the aspergillus is used in place of the yeast plant. These spores are cultivated upon a mixture of goats' milk, toddy, and arsenic. They are much more sought after in cases of amœbic dysentery than in genuine malaria, and I have hopes that the judicious use of peedhal may yet prove beneficial in giving its quietus to the "white plague" of our mining camps.

Pshalooism is very rarely met with; its employment is distinctly homicidal or suicidal. The metal

"death-lamp of the Pshaloos" has three wick channels, into which are placed cotton feeds which convey arsenic-impregnated oil from the reservoir; when ignited this lamp fills the death-chamber with arsenical fumes which are toxic to animal life. The composition of the oil shows it to be a compound of dammar, frankincense, white arsenic, and cocoanut oil. Originally intended to protect the "tomb-temples" "Pthoi" of the Pshaloos from the ravaging hand of "grave-snatchers," it gradually passed over to more murderous uses. The idea that "East is East and West is West, and never the twain shall meet" is a mere poetical flight of fancy.

In these days of rapid transit and racial intermixture, the possibility of destroying life by little-known methods must be borne in mind.

I am, Sir, yours faithfully,

CLARENCE WRIGHT, F.R.C.S. Edin.

Leytonstone, July 10th, 1922.

THE SKULL OF SIR THOMAS BROWNE.

To the Editor of THE LANCET.

SIR,—It may be known to some of your readers that the skull of Sir Thomas Browne has recently been reinterred at Norwich, but that previously it came up to London, where careful measurements, drawings, and tracings of it were made. It is proposed to publish a full account of the skull in *Biometrika*, but it would much add to the interest of the proposed monograph if it were accompanied by a series of reproductions of the portraits and engravings of one of the most noteworthy of Englishmen who have combined the study of medicine with the pursuit of literature.

The large number of plates required to illustrate adequately the relation of the skull to the portraits renders—under the present conditions of both printing and illustrative work—the appearance of a complete monograph, such as we desire to see issued, very difficult. We propose, therefore, to issue one hundred copies of the monograph at the price of one guinea each, if lovers of Sir Thomas Browne can be found in adequate numbers to subscribe for copies. Will you kindly permit us to appeal through your columns for the names of those who are willing to aid in this scheme for putting on permanent record the physical aspect of the author of the "Religio Medici," who, by that and his other works, has won a unique position in the heart as well as in the mind of every cultured Englishman? Willingness to subscribe may be notified to either of the undersigned.

We are, Sir, yours faithfully,

ARTHUR KEITH.

London, July 12th, 1922. KARL PEARSON.

NEGLIGIBLE GLYCOSURIA.

To the Editor of THE LANCET.

SIR,—All agree that no case of glycosuria should be treated as negligible glycosuria until that diagnosis is fully established. About other matters there is a diversity of opinion to a great extent because there is no agreement upon definition. Who can define glycosuria? If one were to assert that glycosuria existed when the urine contained more than x per cent. of dextrose, another would say: "No, not until it contained $(x+y)$ per cent."; whilst yet another would say "$(x-z)$ per cent. is the limit of normal." The same applies to maximum normal blood sugar, low renal threshold, early mild diabetes, and many of the matters referred to by Dr. P. J. Cammidge and Dr. George Graham in their letters of July 15th. For the moment let us set aside these academic questions, which cannot be decided by mere assertion however dictatorially expressed, but only by vote at an International Congress. "Normal" means "average," and it is a matter of convention as to what variation from the average is to be included in arriving at an average. All have recognised that some glycosurics enjoy perfect health whilst not restricting their diet in any way, and that the condition may persist for 20 years or more. Upon examining some number of these with long histories of glycosuria I found—as others had found—that they possess one peculiarity—namely, that of low renal threshold for dextrose, and no hyperglycæmia. I concluded that anyway some of the individuals with this peculiarity had a negligible glycosuria. It remains to be seen whether the peculiarity predisposes to diabetes mellitus. I am of the opinion that it does not.

Dr. Cammidge writes (THE LANCET, July 15th, p. 150): "Negligible glycosuria, if it is truly negligible, *never turns* into diabetes." If Dr. Cammidge worked at a large hospital he would know how ill-advised it is to use the word "never" when referring to any medical matter, but on this occasion he is simply uttering a platitude. I venture to think that if any useful purpose is to arise from debate great care must be taken in the choice of terms and accuracy of quotations. My assertion was that negligible glycosuria did not protect from diabetes mellitus, which is quite different. If Dr. Cammidge's scorn about this means anything, it must mean that he has discovered some form of glycosuria which does protect from diabetes mellitus. I trust that his evidence of this will be more convincing than the single case which he records at the end of his letter—a case of glycosuria without hyperglycæmia, which he asserts was a diabetic. He admits that it can be interpreted in two ways and is only evidence in favour of his view because he thinks it is. I do not admit that I have written anything which justifies him in concluding that I divide all glycosurias into negligible glycosuria and diabetes mellitus; but he may conclude that I divide glycosurias into glycosurias with hyperglycæmia and glycosurias without hyperglycæmia.

Dr. Graham says that according to my definition he would be a case of diabetes mellitus because his blood sugar rises to 0·19 per cent. I did not mean to convey that impression. The limit of blood sugar after a meal containing a fair amount of carbohydrate (75 g.) to 0·15 per cent. was made only for the diagnosis of glycosuria without hyperglycæmia, in order to be on the safe side, and was admittedly arbitrary. When a congress agrees upon the maximum normal blood sugar, many factors will have to be defined. For instance, the form of carbohydrate in the preceding meal; the ratio of dose to the weight of the individual; the ratio of the dose to the surface of the individual; the state of mind of the individual during the test; the volume of fluid; muscular activity, &c. It is because there are so many factors that it is my view at present that the usual meal is better than a definite weight of dextrose.

Dr. Graham raises a question which did not occur to me—namely, that some mild cases of glycosuria with hyperglycæmia are negligible. Probably there are some, but since I am not acquainted with the means he uses for recognising that the disease would not progress even if hyperglycæmia were allowed to persist I should at present advise a diet to prevent hyperglycæmia, and therefore not term the condition "negligible," perhaps through ignorance.

I am, Sir, yours faithfully,

Portland-place, W., July 17th, 1922. O. LEYTON.

THE "RADIOLOGIST" AND THE "RADIOGRAPHER."

To the Editor of THE LANCET.

SIR,—In your issue of July 8th you print an editorial article under the heading of the Radiographer on Trial. I turned to it, expecting to find some remarks upon those responsible for carrying out the purely technical side of X ray work, but found that the medical expert and not the technician was referred to. I feel sure, Sir, that this is a slip on your part

as about a year ago you published an editorial note upon the Society of Radiographers. About that time it was explained in various medical journals that this society had been formed to organise training and examinations for non-medically qualified persons who desired to fit themselves to do X ray work under medical direction. The British Association for the Advancement of Radiology and Physiotherapy (the "B.A.R.P.") took a large share in the founding of this society; and its constitution, before it was legally incorporated, was submitted to, and approved by, the General Medical Council. This society has held two examinations—the first in January last; the second just completed. Successful candidates have the right to use the letters "M.S.R.," and naturally, and quite correctly, they refer to themselves as "radiographers."

The B.A.R.P., in helping to start the society, were fully aware that the term "radiographer" would be used by its members, and therefore advised all medical men specialising in X ray work to adopt the term "radiologist." This has been to a large extent done, but it would help greatly if medical journals of the standing of THE LANCET would maintain this distinction. The relationship between the radiologist and the radiographer is much the same as that between the oculist and the optician, and it is very desirable that the difference in the meaning of the two terms should be appreciated both by the profession and the public.—I am, Sir, yours faithfully,

F. HERNAMAN-JOHNSON, M.D.,
Joint Hon. Secretary, B.A.R.P.

66, Harley-street, W., July 17th, 1922.

OPTIC NEURITIS IN MYOPIA.

To the Editor of THE LANCET.

SIR,—In discussing a paper on optic neuritis by Mr. Leslie Paton at a recent meeting of the Ophthalmological Society, Mr. Cyril Walker asked for an explanation of the rarity of optic neuritis in myopia. Mr. Paton's reply was to the effect that: (1) the alleged rarity is not a fact; (2) there can be no reason for it; (3) myopes are just as liable as anyone else to optic neuritis; and (4) he was at a loss as to how the superstition arose.

I believe that I must plead guilty to having started this "superstition" in a paper read before the Harveian Society of London on Nov. 6th, 1890,[1] although others[2] have the priority in pointing out its converse—viz., the peculiar liability of hypermetropes to optic neuritis.

Mr. Paton's observation that myopes are just as liable to optic neuritis as anybody else is contradicted by my clinical experience and that of others. For more than 30 years I have been on the look-out for cases of optic neuritis in myopia and have not found one amongst my hospital or private patients, though I have been shown one or possibly two by others. This evidence is weak in that it is negative; moreover, my experience has been limited practically to special, that is to say, ophthalmic, hospitals, so that I have not had the same opportunities of coming across such cases as may arise in a general hospital or hospital for nervous diseases. Something more than a statement to the contrary, however, is required to convince me that the combination is not an extremely rare one, and I still hold the view that optic neuritis is commonest in hypermetropia and rare in myopia, the emmetrope occupying a middle position, although I am no nearer an explanation of the causes of the rarity in myopia.

I am, Sir, yours faithfully,

RAYNER D. BATTEN.

Harley-street, W., July 12th, 1922.

[1] Some Points of Relationship of the Eye to the Cardio-vascular System, THE LANCET, 1891, vol. i., pp. 984 and 1035.
[2] Saundby: Note on Optic Neuritis in Children, Birmingham Med. Rev., 1885. Gowers: Medical Ophthalmoscopy, p. 85. Stevens: New York Med. Rec., August, 1876.

Medical News

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—A quarterly Council was held on July 13th, Sir Anthony Bowlby, the President, being in the chair. The President announced that at a meeting of the Fellows on July 6th for the election of three Fellows into the Council in the vacancies occasioned by the retirement in rotation of Sir Charles Ballance, Sir William Thorburn, and Mr. W. McAdam Eccles, Sir Charles Ballance and Sir William Thorburn were re-elected, and Mr. Robert Pugh Rowlands was elected into the Council.—The President further stated that 814 Fellows had voted, 807 sending their ballot papers through the post, and 7 voting in person, and that the result of the poll was as follows:—

	Votes.	Plumpers.
Sir William Thorburn	502	57
Sir Charles Alfred Ballance ..	436	10
Robert Pugh Rowlands	280	39
William McAdam Eccles	272	17
Victor Bonney	228	15
John Herbert Fisher	207	30

Sir Charles Ballance, Sir William Thorburn, and Mr. Rowlands were introduced, made declarations in terms of the oath prescribed by the Charter of 1800, and took their seats on the Council.—A report was read from the Board of Examiners in Anatomy and Physiology for the Fellowship, stating that at the examination concluded on June 16th 168 candidates were examined, of whom 46 were approved and 122 rejected. The names of the successful candidates have already appeared in THE LANCET.—A report was read from the Board of Examiners in Dental Surgery respecting candidates found qualified for the Licence in Dental Surgery, and licences were granted to the following 64 candidates:—

V. St. J. Alexander and J. F. Allin, Guy's; Fanny H. Bachrach and H. D. Bacon, Royal Dental; A. Ball, London; V. R. Bangert, Royal Dental; C. V. T. Baugh, Guy's; G. Best, Birmingham; C. F. Bishop, Sheffield; N. S. Campbell, J. H. R. Creasy, and B. Crisp, Guy's; W. G. Daniels, Royal Dental; I. S. de V. du Toit, Guy's; W. J. Eason, Univ. Coll.; G. H. Edwards, Birmingham; J. C. Faure and T. F. Fox, Guy's; A. E. Fyffe, Sheffield; A. A. Gomes, Ceylon and Royal Dental; A. V. Goodson, Guy's; T. L. C. Gregory, Royal Dental; W. C. Griffiths, Birmingham; W. J. Hide, Guy's; H. Hill, R. Hopkins, and J. V. Houlton, Royal Dental; J. U. Human and E. J. Joels, Guy's; W. L. C. Jones, Liverpool; P. Lloyd-Williams, Royal Dental; E. M. D. Mackie, A. A. R. Madgwick, G. M. Mew, and H. F. Miles, Guy's; V. V. Monteiro, Bombay and Royal Dental; B. R. Moore, Guy's; S. F. Parker, Royal Dental; R. R. B. Payne and R. M. Pearce, Univ. Coll.; H. Radin, M. Rubenstein, and H. G. Ryder, Guy's; D. G. Salle, Univ. Coll.; C. P. C. Sargent, H. V. R. Sellers, K. G. Sharvill, and G. L. Shearar, Guy's; C. J. C. Small and Anne M. Stephens, Royal Dental; D. J. Stofberg, Guy's; T. N. Strange, Univ. Coll.; V. L. Sunderland and L. N. Theron, Guy's; C. W. F. Thomas, London; W. G. Travis, Univ. Coll.; E. A. van Dyck, Royal Dental; R. van Geuns, Guy's; M. Vaughan, Royal Dental; Walravine J. Verheyden, Univ. Coll.; H. Walker, C. W. Weedon, and W. A. Wolfendale, Royal Dental; and F. H. Woolley, Bristol.

A report was read from Mr. F. G. Hallett, secretary to the Conjoint Examining Board of England, respecting candidates found qualified for the Diploma in Public Health, and diplomas were granted to the following 25 candidates mentioned in the report jointly with the Royal College of Physicians:—

J. E. Bowen, Dublin and King's Coll.; D. S. Brachman, Pennsylvania and St. Bart.'s; B. C. Dasgupta, Calcutta and Univ. Coll.; P. Davies, Edinburgh and Cardiff; A. M. El Kirdany, Cairo, Glasgow, and Guy's; R. F. Fagan, Univ. Coll.; C. H. H. Harold, Liverpool and R.A.M. Coll.; P. A. Hayne, St. George's; F. B. Hobbs, Cambridge and Univ. Coll.; C. B. Hogg, Aberdeen and Royal Inst. Pub. Health; A. E. Ironside, Middlesex; Doris E. P. Jolly, King's Coll.; B. L. Joshi, Punjab and Royal Inst. Pub. Health; G. J. W. McMichael, Univ. Coll.; M. C. Madhok, St. Andrews and Univ. Coll.; J. Misquitta, Bombay and Royal Inst. Pub. Health; W. Oats, St. Thomas's and Univ. Coll.; G. R. Painton, London and Royal Army Med. Coll.; Barbara Richardson, Edinburgh and Royal Inst. Pub. Health; J. P. Rosha, Punjab and Univ. Coll.; A. D. Soares, Bombay and Royal Inst. Pub. Health; Ruth C. Townsend, Royal Free and Univ. Coll.; J. R. D. Webb, Liverpool and Royal Army Med. Coll.; H. G. Wiltshire, Cambridge and King's Coll.; and F. H. Young, Cambridge and St. Bart.'s.

A report was also read from Mr. Hallett respecting candidates found qualified for the Diploma in Psychological Medicine, and nine diplomas were granted, jointly with the Royal College of Physicians, to the following candidates:—

J. Bostock, London and Hanwell; J. J. Gasperine, St. Bart.'s and Horton.; H. H. P. Morton, King's Coll. and Bexley;

N. Navarra, Middlesex and Dartford; F. X. Noronha, Madras and Bethlem; F. Paine, Middlesex and Claybury; E. C. Rayner, Cambridge, Middlesex, and Hanwell; C. H. L. Rixon, St. Thomas's and H.M. Prison, Brixton; and K. M. Rodger, Glasgow and Horton.

A report was read from the Director of Examinations respecting a candidate found qualified for the F.R.C.S. (with Ophthalmology), and a certificate of F.R.C.S. (with Ophthalmology) was granted to Mr. Frederick Williamson-Noble.—A report was read from the Committee on the formula for altering Section XX. of the standing rules, and it was decided that: 1. The John Hunter Medal executed in bronze shall be awarded with the Triennial Prize of £50. 2. The award may be made triennially by the Council to a Fellow or Member of the College, not on the Council, who has, during the preceding ten years, done such work in Anatomy, Physiology, Histology, Embryology, or Pathological Anatomy, as, in the opinion of the Committee, deserves special recognition.—The President announced that he had nominated Sir StClair Thomson and Mr. Arthur H. Cheatle to represent the College at the Tenth International Congress of Otology to be held in Paris from July 19th to 22nd.—The Council elected the following professors and lecturers for the ensuing year:—

Hunterian Professors.—Sir Arthur Keith: Six lectures on Man's Posture—its Evolution and Disorders. Robert Lawford Knaggs: One lecture on Osteitis Fibrosa. Louis Bathe Rawling: One lecture on Remote Effects of Gunshot Wounds of the Head. Edward Musgrave Woodman: One lecture on Malignant Disease of the Upper Jaw, with special reference to Operative Technique. Cecil Augustus Joll: One lecture on the Metastatic Tumours of Bone. Hugh Ernest Griffiths: One lecture on the Relationship between Disease of the Gall-bladder and the Secretions and Functions of the Stomach and Pancreas. Geoffrey Langdon Keynes: One lecture on Chronic Mastitis.

Arris and Gale Lecturers.—James Alane Coupland: One lecture on Observations on the Human and Comparative Anatomy of the Parathyroid Gland, with Investigation of its Function and Relation to Post-operative Tetany and the Surgical Technique its Presence Demands in Thyroid Surgery. Leonard Ralph Braithwaite: One lecture on Lymphatic Flow from the Ileo-Cæcal Angle and its bearing upon Gastric and Duodenal Ulcers and other forms of Indigestion. Ethelbert Rest Flint: One lecture on Abnormalities of the Hepatic and Cystic Arteries and of the Bile-ducts and their Surgical Significance.

Erasmus Wilson Lecturer.—Samuel George Shattock: Six demonstrations on Pathological Specimens in the Museum.

Arnott Demonstrator.—Sir Arthur Keith: Six demonstrations on the Contents of the Museum.

The Council elected as President Sir Anthony Bowlby, and as Vice-Presidents Sir D'Arcy Power and Sir Berkeley Moynihan.

UNIVERSITY OF LEEDS.—With the object of assisting in the further development of the clinical teaching of medicine and surgery, three new full-time officers have been appointed—one as medical tutor and registrar and two as clinical assistants in surgery. These officers will devote their whole time to teaching and research in the School of Medicine and in the General Infirmary at Leeds. The council has made the following appointments to the new posts thus created: Dr. W. MacAdam as medical tutor and registrar, and Mr. H. W. Symons and Mr. P. J. Moir as clinical assistants in surgery.

A Congregation of the University was held in the Town Hall on July 1st, when the following degrees were conferred:—

DOCTOR OF MEDICINE.

G. Colin H. Nicol.

BACHELOR OF MEDICINE AND BACHELOR OF SURGERY.

With Second-class Honours.—Henry P. Fowler, Mary Hellier, Ronald E. Jowett, and John A. Trewick.

Frances M. Bebb, Harry Brostoff, Thomas S. Davy, George Denton, Solomon Erdheim, Morris Gordon, Doris M. Langley, Hyman E. Lapidus, Simon Levy, Kathleen M. Peacock, Harry Sugare, Margarite Ward, Bertha Wheatley, and Percy E. Woodroofe.

In examinations held recently the following candidates were successful:—

FINAL M.B., CH.B. EXAMINATION.

Part II.—Edward Baron, Frances M. Bebb, Jack Bernstein, Frederick Clegg, Ralph E. Crockatt, Dorothy M. Edgecombe, Solomon Erdheim, Henry P. Fowler, Abraham Goodman, Christine M. B. Hare, Mary Hellier, Ronald E. Jowett, Doris M. Langley, Hyman E. Lapidus, Ernest Linfoot, Percy Oberman, John R. Oddie, James E. Outhwaite, Morris Sourasky, Donald M. Sutherland, John A. Trewick, Guthrie M. Wadsworth, and George F. Walker.

Part I.—Richard Chester, Florence Cusworth, Eustace L. H. Jones, Reuben Lipman, Radoye Marinkovitch, Hugh M. Petty, John W. Pickard, Barnett Stross, Harry Taylor, Wilfred Thistlethwaite, Sydney Thompson, and Donald Yates.

SECOND M.B., CH.B. EXAMINATION.

Part I.—Jack Cohen, Wilfred S. Flowers, Elsie G. M. Ford, George E. A. Lewis, George M. D. Lobban, Albert V. McLean, Samuel Nagley, Jacob Raisman, May Su, Thomas H. Taylor, Robert Walter L. Ward, John Vaughan Whitaker, Evan G. Williams, and David Zimmerman.

Part II.—Mary B. Alexander, Arthur Dalby, George M. D Lobban, Ernest T. Ruston, and Abram Shufleder.

DIPLOMA IN PUBLIC HEALTH.

Harry Sinson and Marjorie Harris.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.

Cecil W. Ewing, Felix A. Kerr, and George C. F. Roe.

FINAL L.D.S. EXAMINATION.

Part II.—Geoffrey B. Brown, Wilfred J. J. Craig, Roderick M. Finlayson, Joseph H. Hamer, Harry Murgatroyd, Arthur D. Page, Ralph N. Ross, Thomas E. Smith, and Arthur Syder.

Part I.—Wilfred Armitage, Albert Brewer, Sydney Burn, Reginald B. T. Dinsdale, James Dunleavey, Albert E. Gisburn, Joseph Gordon, Sydney H. Jowett, William H. Lumb, William S. MacLean, Robert Orton, Thomas H. Ramsden, Sydney B. Ratcliffe, Howard Shaw, Oswald Slater, Walter Sunderland, and Alfred L. Taylor.

UNIVERSITY OF MANCHESTER.—At examinations held recently the following candidates were successful:—

DIPLOMA IN PUBLIC HEALTH.

Martha F. Barritt, Frank da Cunha, Winifred I. Doherty, Florence M. L. Graham, T. H. Jones, W. H. Leigh, J. K. Lund, G. H. Roberts, Doris A. Taylor, Mary I. Turner, and Frances G. Wilcocks.

The following awards have been made:—Tom Jones Memorial Surgical Scholarship: Eric A. Linell. Dauntesey Medical Scholarship: (1) Maurice Sheehan; (2) Kathleen Sheehan. University Prize in Medicine: Divided between R. L. Holt and F. H. Smirk. Dumville Surgical Prize: Hilda Pratt.

UNIVERSITY OF BRISTOL.—At examinations recently held the following candidates were successful:—

FINAL EXAMINATION FOR DEGREES OF M.B., CH.B.

Part II. (completing examination).—John R. Duerden.

Part I. (including Forensic Medicine and Toxicology).—Georgina R. Dunn and Idris Williams.

Part I. only.—Muriel V. Joscelyne, Dorothy Staley, and Frederick K. Wilson.

FINAL EXAMINATION FOR DIPLOMA IN DENTAL SURGERY.

Robert H. Davis, Jenkin Evans, Harold C. Hopes, Henry A. Jones, Edwin H. Longney, Reginald March, and Cyril G. Payne.

EXAMINATION FOR DIPLOMA IN PUBLIC HEALTH.

John B. Adams and Eric D. D. Davies.

Part II. (completing examination).—Bernard A. Astley-Weston.

Part I. only.—Frederic P. Mackie.

UNIVERSITY OF ABERDEEN.—The summer graduation ceremony was held on July 13th, when the following degrees were conferred:—

DOCTOR OF MEDICINE.

John Smith (honours for thesis) and Charles Clyne.

MASTER OF SURGERY.

Alexander Victor Reid Don.

BACHELOR OF MEDICINE AND BACHELOR OF SURGERY.

With First-class Honours.—*William L. Hector and †Redvers N. Ironside.

With Second-class Honours.—*Robert Cruickshank, *Alexander N. Gordon, and Gladys Nellie Watson.

Ordinary Degree.—Isabella A. Baxter, Alexander F. Bothwell, Margaret P. Bowman, Agnes G. Bruce, Alfred J. Buchan, Janet S. Cameron, Donald Campbell, Robert J. Campbell, *John G. J. Coghill, Margaret J. Coutts, Alexander Cruickshank, John F. Davidson, Harry L. Duncan, Robert J. Duthie, Arthur A. Eagger, Ethel R. Emslie, Lyla Catherine Forbes, Winifred M. Foster, Walter Gregor, Henry James Horne, Richard A. Hutchinson, Annie M. Jack, James P. Jessiman, John C. Kerrin, Francis H. Lakin, William Lawie, Norman H. Leslie, Gordon L. McCulloch, George A. Macdonald, Isabella F. Mackenzie, William McConnachie Macpherson, Edith M. Macrae, Ronald McRobert, Robert B. Milne, Alexander A. McIntosh Nicol, Charles L. Noble, William J. O'Connor, Alice Reid, Clarence E. Riddell, Charles J. Royston, James B. Samson, James F. Shepherd, Alexander Stephen, Robert Thomson, Alice M. Watt, Eleanor M. Watt, and Gladys M. West.

* Completed Final Medical Professional Examination with distinction.

† Completed Final Medical Professional Examination with much distinction.

DIPLOMA IN PUBLIC HEALTH.

Alan A. Duffus and Marjorie M. Milne.

UNIVERSITY OF DUBLIN, SCHOOL OF PHYSIC, TRINITY COLLEGE.—At examinations held recently the following candidates were successful:—

FINAL MEDICAL EXAMINATION.

Part I., Materia Medica and Therapeutics; Medical Jurisprudence and Hygiene; Pathology and Bacteriology.—Joseph E. Eliason, Richard A. D. Pope, Morris Cohen, James J. O'Grady, John K. S. Thompson, John M. Mounsey, Reginald A. Dench, George Robinson, Otto G. Wilde, Charles W. J. Ingham, Jan Andreas du Toit, Leslie D. Dennard, Louis E. J. Werner, Cecil J. McQuillan, Robert Warnock, Sylvia B. Wigoder, Jack M. Gordon, Harry Ruben, John Kalmanson, Wallace R. Aykroyd, Kathleen D.

Murison, Frederick T. Easby, Maurice D. Fox, Norman M. Greeves, John J. Laing, Tobias Freedman, Noel G. McAuliffe, Alice E. Dockrell, Willem Johannes Janse van Rensburg, Charles R. Hillis, Dorothy I. Henry, Victoria J. Wilson, and Robert E. Steen.

Pathology and Bacteriology only.—Albertus Wijnand Eksteen, Louis Harris, Nicolaas Jan Valkenburg Van Druten, William L. W. Smith, Samuel W. Jamison, and Mossy Jaffe.

Materia Medica and Therapeutics; Medical Jurisprudence and Hygiene.—Samuel McDermott, Gladys Weatherill, Angel Valentine B. Crawford, and John L. Stuart.

Materia Medica and Therapeutics only.—Eric C. Downer.

Medical Jurisprudence and Hygiene only.—Eileen Brangan.

Part II., Medicine.—Isaac Cornick, Michael G. J. Powell, John V. Carroll, Max Sayers, Beryl Frances E. Cockle, Matthijs Petrus Louw, David J. Malan, George S. Moran, Jan Hendrik Rauch, Albertus Wijnand Eksteen, John C. J. McEntee, Michael Gallivan, John G. Russell, Charlotte A. Stuart, Geoffrey Bewley, Herbert Hall, Samuel W. Russell, John D. Wicht, Richard Seale, Alfred H. N. Todd, Laurence Phillips, Samuel G. Weldon, Joseph M. O'Connor, Mary H. Harcourt, and John H. J. Stuart.

Midwifery.—John C. Earl, Bernard Gluck, Ernest M. Landau, James O'Neill McKenna, Louis Johannes Coetzee, Reuben Lipschitz, Robert H. Micks, Dorothy C. H. Dorman, Percy Samolsky, Maria E. Wagener, Siegfried D. Gabbe, Dermod H. F. Milmo, John Lait, John E. McCormick, Cecil W. R. McCaldin, David L. H. Moore, John D. Wicht, William R. Burns, Richard R. D. Crawford, Reginald Hegy, John G. Russell, Jan Hendrik Rauch, Albertus Wijnand Eksteen, Jan Hendrik Hodgman, Philipp F. H. Wagner, Cecil G. S. van Heyningen, Asher Asherson, Barend Vivier, Jacobus F. van Staden, and Alice M. A. Downing.

Surgery.—Maurice Bewley, Ninian McIntire Falkiner, Seymour G. Rainsford, Joseph C. Gillespie, Mauritius Meiring Viljoen, John C. J. McEntee, Samuel W. Russell, Minnie Alper, John Lait, Geoffrey Bewley, Reginald Hegy, George Blackall, Barend Vivier, Matthijs Petrus Louw, William B. E. McCrea, Robert N. Perrott, John V. Carroll, Allen E. Drotske, May E. Powell, Florine I. Irwin, John R. Craig, Joseph Harte, John E. McCormick, and Max Sayers.

DIPLOMA IN PUBLIC HEALTH.

Part I.—Catherine A. Goggin and Mary M. Galvin.

Part II.—Margaretta T. Stevenson, Alice B. S. Smith, John S. Dockrill, and Richard V. Dowse.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At a recent meeting of the Faculty the following were admitted (after examination) as Fellows:—Amarendra Nath Basu, Jacob Lipsey, Nathaniel B. Morris, and Charles Read.

THE LATE DR. WILSON BRUCE.—Dr. R. Wilson Bruce, who died at his residence in Glasgow on July 8th, qualified L.R.F.P.S. Glasg. in 1872, having received his medical education at Anderson College and at the University of Glasgow. Dr. Wilson Bruce, who had retired from practice, was in his seventy-eighth year; he had been visiting surgeon to the East Park Home for Infirm Children, fever physician at the Royal Infirmary, and surgeon to the Medical Mission Dispensary in Glasgow.

NATIONAL MILK CONFERENCE.—A conference will be held on Oct. 16th, 17th, and 18th in the Council Chamber of the Guildhall, London, when papers will be read on various aspects of the milk question and discussions will follow. The papers will include one by Mr. F. Arnold Lejeune on the Production of Clean Milk; one on Bovine Tuberculosis and its Relation to Man, by Dr. A Stanley Griffith; and one on the Tuberculin Tests, by Captain S. R. Douglas; while Dr. John Robertson will deal with the Handling and Distribution of Milk. Dr. Charles North and Prof. Georges Dreyer will discuss the Pasteurisation and Other Methods of Treating Milk. Dr. Robert Hutchison will deal with the Food Value of Milk and its Care in the Home, and Sir Daniel Hall, with Education of the Public and of the Dairy Industry in Regard to Milk. Further particulars may be obtained from Miss H. M. Willans, hon. sec., National Milk Conference, 3, Bedford-square, London, W.C. 1.

DEATH OF MR. L. H. TOSSWILL.—Mr. Louis Henry Tosswill, who died on July 7th at Clifton Hill, Exeter, at the age of 79 years, was a graduate of Cambridge University, where he was successful in the Natural Science Tripos and graduated M.B. in 1870, obtaining the M.R.C.S. in the same year. After holding a resident appointment at St. Bartholomew's Hospital, he became house surgeon to the Royal Devon and Exeter Hospital and to the West of England Deaf and Dumb Institution. In 1873 he was appointed assistant surgeon at the West of England Eye Infirmary, where he later became senior surgeon and, in 1903, consulting surgeon. In 1907 he was president of the Ophthalmic Section of the British Medical Association meeting at Exeter. He was the author of "The General Practitioner's Guide to Diseases and Injuries of the Eye and Eyelids." Mr. Tosswill married in 1874 Miss Caroline Anne Dymond, who predeceased him. He leaves three sons and four daughters. Mr. Tosswill shot for Cambridge at the first Wimbledon meeting and was in the Queen's Hundred.

A KENT MEDICAL ADVISORY COUNCIL.—The Kent Local Medical and Panel Committees announce the formation of a Local Medical Advisory Council, on the line of the well-known Dawson report, consisting of representatives of public health authorities and medical practitioners. The public health authorities nominated consist of a whole-time medical officer of health, a tuberculosis medical officer, and an educational medical officer. The medical practitioners nominated include eight general practitioners, two representatives of hospital staffs and consultants, a member of the staff of a mental hospital and of a fever hospital, a representative of the Poor-law Medical Services, four members of Kent Local Medical and Panel Committees, a woman practitioner, and a member of the Canterbury Medical Insurance Committee. A meeting for the election of officers will be held probably in October.

GOLDEN WEDDING OF SIR MALCOLM MORRIS: A LUNCH OF CONGRATULATION.—On Tuesday last Sir Malcolm and Lady Morris celebrated their Golden Wedding, and advantage was taken of the occasion by a large group of personal and professional friends to make a wedding gift at a luncheon in their honour. The chair was taken at the Empire Rooms of the Trocadero Restaurant, London, by Sir George Newman, Chief Medical Officer to the Ministry of Health, and about 120 personal friends assembled. Sir George Newman's speech, in proposing the "Old Young Couple," was prefaced by reading letters from the Archbishop of Canterbury and Sir StClair Thomson, which reviewed in happy terms the public and professional career of Sir Malcolm Morris. The Chairman asked the company to recognise in Sir Malcolm Morris's career the working of three main factors: the possession of great clinical gifts; devotion to the cause of public health in its widest sense; and the gift of attracting and retaining personal friendships. An eloquent speech, in which Sir Malcolm Morris's public services in the cause of prevention of tuberculosis, in the control of venereal disease, and in the promotion of public health were dwelt upon, demonstrated to the audience that Sir Malcolm Morris had obtained his position of esteem and regard by a blend of these three qualities. Sir George Newman's proposal was supported by Dr. J. J. Pringle, who testified to the high position which Sir Malcolm Morris had won as a dermatologist, when the toast was drunk with musical acclaim. Sir George Newman then presented Sir Malcolm and Lady Morris with a silver Georgian tea-set, adding that further presents of books to Sir Malcolm and jewelry to his wife were being made.

Sir Malcolm Morris, in an eloquent and intimate reply, sketched his life from the position enjoyed (or otherwise) by a poor medical student, the fifteenth child of an Indian judge, to his present position. He told frankly of his early poverty and its humorous compensations, of his youthful marriage, of his hard life as a Yorkshire general practitioner, of the critical struggles in the attempt to make good in London, and of his success when those struggles were over. He concluded a moving speech by asserting that the secret of keeping young was to have, to cultivate, and to preserve an interest in public questions, especially where that interest is directed towards a betterment of fellow men. Lady Morris, who also replied to the toast, was happy in the little picture which she drew of the wife of an ambitious man; one who stood by wondering whether her husband was going to go higher or fall down, recognising that it was her duty to meet either event. The toast of the chairman was briefly proposed by Sir Thomas Horder and responded to by Sir George Newman.

FELLOWSHIP OF MEDICINE.—The annual meeting of the Fellowship of Medicine and Post-Graduate Medical Association was held at the House of the Royal Society of Medicine on Friday, July 14th, Sir George H. Makins, President, in the chair. Mr. Herbert J. Paterson read the hon. secretaries' report, which showed a fair muster roll of post-graduates during the year, with representatives from all parts of the world, the majority of whom were either proceeding or returning from post-graduate centres at Vienna or Berlin. The report reiterated the necessity of providing a central bureau as being an effort to get into line with the report of the Athlone committee, and it alluded also to the successful series of lectures delivered in the House of the Royal Society of Medicine by well-known physicians and surgeons. Mr. Paterson moved, seconded by Colonel P. G. Stock, that the report be adopted, and in putting this to the meeting Sir George Makins mentioned that a deputation had been received by the Minister of Health and that the Minister had promised to give the matter his consideration. The report was adopted unanimously, and the chairman asked Sir Arbuthnot Lane to present the financial statement. Copies of the balance-sheet having been previously circulated to the members, it was taken as read, but the treasurers reported the purchase, in view of the fall in the bank-rate, of £1150 Funding Loan, thus dealing with the greater part of the surplus account. Sir Arbuthnot Lane proposed, seconded by Sir Arthur Mayo-Robson, that the financial report be adopted. This was carried unanimously. On the

proposal of the chairman, the members of the General Council were unanimously elected to serve for the ensuing year. Also, on the proposal of Sir William Hale-White, seconded by Sir Humphry Rolleston, it was agreed that the revised constitution and rules of the Association be approved and confirmed (THE LANCET, vol. i., 1922, p. 1063). On the motion of Mr. Ernest Clarke, seconded by Sir Arthur Mayo-Robson, the following resolution was cordially and unanimously passed:—

"That the Fellowship of Medicine and Post-Graduate Medical Association desires to place on record its indebtedness to the President and Council of the Royal Society of Medicine for their continued generosity in putting rooms at the disposal of the Association gratis, and also that the best thanks of this meeting be conveyed to the Royal Society of Medicine for this assistance, without which it would have been impossible to have carried on the work."

Both the mover and seconder wished to associate with the resolution especially the name of Sir John MacAlister, to whose personal services and interest the Fellowship owed so much. Sir George Makins, in putting the resolution to the meeting, expressed the gratitude of the Association for all that Sir John MacAlister had done.

Post-graduate Course in General Medicine.—A further two weeks' special course in General Medicine will be held from Sept. 11th to 22nd. A morning and afternoon session will be held each day and the following subjects will be dealt with: Pulmonary Disease, including the X ray aspect; Cardiology; Neurology and Mental Disease; Pathology; Medical Ophthalmology, &c. Copies of the preliminary syllabus with further details can be obtained from the Secretary to the Fellowship of Medicine, 1, Wimpole-street, London, W. 1.

THE LATE DR. C. H. BROOKING.—The death occurred on July 16th, at his home in Paignton, of Dr. Charles Henry Brooking, in his 101st year. Dr. Brooking qualified M.R.C.S. and L.S.A. in 1843, becoming M.D. St. Andrews in 1856, and was therefore one of the oldest members of the profession in this country.

DENTAL BOARD OF THE UNITED KINGDOM.—The first prescribed examination under the Dentists Act, 1921, was held at Manchester on July 11th and 12th. Of 65 candidates who presented themselves, 45 satisfied the examiners, and may now be eligible for registration as dentists. Of the 15 war-service candidates, 4 satisfied the examiners in Part (1) only, and 1 in Part (2) of the examination.

THE LATE DR. GAVIN STIELL.—The death occurred on July 15th of Dr. Gavin Stiell, of Clapham, one of the best known and justly respected medical practitioners of South London. Dr. Stiell, who was born in 1857, was the youngest son of the late Gavin Stiell, chemist and druggist, Dunfermline. He was educated at Dunfermline High School, the Royal College of Surgeons, Edinburgh, and Edinburgh University, where, after a course in which he gained distinctions, particularly in surgery, he graduated in 1881 with the degrees of M.B. and C.M., taking the degree of M.D. later. Dr. Stiell came to London in 1887 and settled in Clapham, where he built up a very large and good practice in a growing residential centre. He kept well abreast of recent developments in medicine and surgery, and with his professional knowledge and experience and his unceasing care and devotion to his work he combined the no less valuable attributes of kindness and firmness. He was one of the original Fellows of the British Balneological and Climatological Society. Dr. Stiell is survived by his widow and two sons, both of whom have adopted the medical profession, the elder having since the termination of the war assisted his father in Clapham, and the younger being in practice in Lincoln.

NATIONAL CONFERENCE OF LOCAL VOLUNTARY HOSPITAL COMMITTEES.—The first session of a national conference of representatives of local voluntary hospital committees was held in the conference room of the Ministry of Health on July 18th. The conference was organised by the Voluntary Hospitals Commission, and included representatives of all English local voluntary hospital committees, and of the majority of the Scottish hospital committees. Lord Onslow, who presided, thanked the members of the local committees, on behalf of the Government and of the Voluntary Hospitals Commission, for the work they were doing and had done. Mr. Walter Davis (Manchester), speaking on behalf of the Lancashire local committees, introduced a discussion on the future of local hospital committees, and moved a resolution which was supported by Mr. Wade Deacon (Chairman, British Hospital Association) and amended by Sir Arthur May (Cornwall), being finally passed by the conference in the following terms: "That there should be established a standing committee of representatives of the local hospital committees, to whom the Commission could refer for advice and assistance, to be appointed in the first instance by the Commission; and that in the personnel of such a committee should be included representatives of less populous districts." On the motion of Mr. H. N. Crouch (Somerset), a second resolution was also passed in these words after some discussion: "That it is desirable that the hospital committee areas be so regrouped that each area constitute a suitable unit in which to make the attempt to effect coördination between the existing hospitals, and so gradually create a complete and properly organised system on a voluntary basis." During a discussion on payment of administration expenses of local committees, Lord Cave described the difficulty felt by his committee in recommending that voluntary hospital committees should have a right to payments out of public funds. They had recommended that county councils should have the power to contribute towards the expenses of the committees, and when they did so he hoped the committees would send annual reports to the councils. Apart from this means of support, private subscription was the only means of raising contributions.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—During the recent disturbances in Dublin the Government of the Free State placed a military guard in the Royal College of Surgeons to protect its premises and property. When the time came for withdrawal of the guard the Council, through Mr. R. C. B. Maunsell, Vice-President, expressed its thanks to Lieutenant Donald O'Leary, who commanded the guard, and to his men for their courtesy and consideration while in the College, and presented an inscribed silver cigarette case to Lieutenant O'Leary.

LORD MAYOR'S HOSPITAL FUND IN BRISTOL.—Thanks to a week of house-to-house canvassing ending in an intensive campaign on Rose Day, the Lord Mayor of Bristol has already succeeded in bringing his Fund to a record total of over £8000. It is hoped that it may yet reach £10,000 or over. The deficits of the voluntary hospitals in Bristol are alarmingly big, and only a fraction of these is met by the payments now being collected from patients.

BRISTOL MEDICAL COMMITTEE.—At the invitation of this committee a meeting of the medical practitioners of Bristol and neighbourhood was addressed on July 12th by Dr. J. F. Gordon Dill on the Brighton and Sussex scheme for provision of hospital and consultant services, Dr. G. T. Myles presiding. He gave a lucid account of the causes which led up to the initiation of the scheme, the steps of its evolution, and of its working. A vote of thanks to Dr. Dill was proposed by Dr. George Parker and seconded by Dr. D. S. Davies. The meeting expressed a desire that the question of applying a similar scheme to Bristol be discussed by the Bristol Medical Committee.

LONDON HOSPITALS COMBINED APPEAL.—The executive committee of the Combined Appeal have recommended the Council of King Edward's Hospital Fund to make an early distribution of at least £200,000 of the total sum of over £272,000 now received for the hospitals of Greater London. Lists remain open at the Mansion House, the Westminster City Hall, the town halls and council offices of all metropolitan boroughs, and of many boroughs and urban districts in Outer London.

The members of the General Council and Committees of King Edward's Hospital Fund, which is organising the Combined Appeal for the hospitals of London, have themselves contributed so far the sum of £16,672 13*s*. The Earl of Iveagh has given £5000; Viscount Hambleden, £2500 on account of a conditional promise of £5000; Mr. Stuart de la Rue, £1050; and Lord Revelstoke, Lord Marshall, Lord Bearsted, Sir Alan Anderson, and Mr. Robert Fleming, £1000 each. The list also includes donations from the Bishop of London (£26 5*s*.), Cardinal Bourne, the Chief Rabbi and other clergy, the Presidents of the Royal Colleges of Physicians and Surgeons, and most of the medical members of the Council.

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HOUSE OF COMMONS.

WEDNESDAY, JULY 12TH.

Demand for Pension Instructions.

Mr. CHARLES WHITE asked the Minister of Pensions whether he was aware of the dissatisfaction and uncertainty existing amongst pensioners, and whether, so as to place Members of Parliament in a position to explain the real situation to pensioners, he would give instructions that each Member should be supplied on application with all warrants, copies of all regulations, instructions to pension committees, medical boards, investigation officers and assessors, and all others having authority to deal with pensions and allowances, including any instructions sent out where the recipients were bound to secrecy under the Official Secrets Act.—Major TRYON replied: I am glad to say that the information in the possession of the Ministry does not confirm the description of the state of mind existing among pensioners, which my hon. friend suggests. I would remind him that there already exists a complete local machinery from which pensioners and claimants to pension can obtain full information and assistance. Moreover, it is the statutory duty of the new War Pensions Committees to hear and investigate complaints. My right hon. friend thinks that the Royal Warrants, Regulations, Committees' Handbook, and other publications already available to Members, contain all the information that is necessary for my hon. friend's purpose.

Cost of Insurance Administration.

Mr. TREVELYAN THOMSON asked the Secretary to the Treasury how much of every 20*s.* received in the way of contributions from all sources to the National Health Insurance Fund and the Unemployed Insurance Fund was expended in benefit and how much in the cost of administration.—Sir J. BAIRD replied: Out of every 20*s.* of the total amount received from all sources into the National Health Insurance Fund it is estimated that 12*s.* 2½*d.* goes in benefit, 5*s.* 1½*d.* to reserve, and 2*s.* 8*d.* on administration. The corresponding figures for the Unemployment Fund are 17*s.* 10*d.* in benefit and 2*s.* 2*d.* in administration (including the cost of dealing with insured workpeople at unemployment exchanges). The hon. Member is, no doubt, aware that the amount estimated to be paid out in unemployment benefit during the current financial year is substantially greater than the total contributions, the balance being met by borrowing.

Overcrowding in England and Wales.

Mr. TREVELYAN THOMSON asked the Minister of Health for the latest available returns of overcrowding, so far as house accommodation was concerned, in England and Wales.—Sir ALFRED MOND replied: The final figures of the Census of 1921 are not yet available, but the provisional total figures derived from that Census are as follows:—

	1921.
No. of "Census" families (i.e., separate units for which a schedule is filled up) per separate dwelling (whether occupied or unoccupied)	1·098
Size of "Census" families	4·25
No. of persons per separate dwelling (whether occupied or unoccupied)	4·67
Average number of persons per room	0·93

Voluntary Boarders in Mental Hospitals.

Mr. ROBERT RICHARDSON asked the Minister of Health the number of voluntary boarders in licensed houses and registered mental hospitals, respectively, in England at the present time; how many had been certified during the past year; what was the longest, shortest, and average length of their residence in a private asylum; and how many of the whole number of boarders had left of their own accord during last year.—Sir A. MOND replied: On Jan. 1st, the latest date for which figures are available, there were 127 voluntary boarders in licensed houses and 165 in registered hospitals in England and Wales. 169 voluntary boarders were certified during 1921, and 421 left on their own accord. The period of residence varies from a few days to several years, and the average is probably under six months.

The Forthcoming Lunacy Bill.

Mr. ROBERT RICHARDSON asked the Minister of Health whether he proposed in his new Mental Bill to introduce into England the section of the Scotch Lunacy Act which authorised without certification the compulsory detention of an individual for six months in a mental institution on the word of one doctor without any provision for inquiry or appeal.—Sir A. MOND replied: No such provision is in contemplation. I must not, however, be taken as accepting the hon. Member's interpretation of the Scottish Act in question, the proper construction of which is, I understand, a matter of considerable doubt.

The Schick Test.

Mr. GILBERT asked the Minister of Health whether his department had recently made any effort to push the application of the Schick treatment for diphtheria in all institutions controlled or helped by his department; whether any recent circulars on this treatment had been issued by his department; and whether any of them suggested that it should be applied to all school-children who were in institutions under the control of his department.—Sir A. MOND replied: The answer to each of the three parts of the question is in the negative. No circular has been issued by my department on this subject since November last. I propose, however, to issue a memorandum at an early date containing information on the proper use of the test.

Insanitary Dump at Little Britain.

Colonel DU PRE asked the Minister of Health whether he had received a petition from the inhabitants of Iver and Yiewsley protesting against the continuance of an insanitary refuse dump at Little Britain: whether it had been condemned by the local medical officers of health; and whether he would take steps to abate this public nuisance.—Sir A. MOND replied: Petitions have been received from residents in the places mentioned. The whole question of refuse dumps in the neighbourhood of London is now under special consideration and negotiations are pending which, I hope, will lead to substantial improvements.

THURSDAY, JULY 13TH.

Smoke Pollution.

Sir ARTHUR FELL asked the Minister of Health why proceedings were not taken against the persons owning furnaces and factories or buildings used for trade which failed to consume the smoke emitted from their chimneys; and, in view of the chimneys that could be seen from every bridge across the Thames pouring out black and unconsumed smoke, would he say how many prosecutions for this offence were instituted by the sanitary authority last year.—Sir A. MOND replied: I understand that in London there was one prosecution last year, and five, so far, this year. I would refer my hon. friend to the report of the Smoke Abatement Committee as to the difficulty of administering the existing law. The Government hope shortly to introduce a Bill on the subject.

National Housing Survey.

Mr. JOHN DAVISON asked the Prime Minister whether it was the intention of the Government to make a complete national survey of the whole of the housing accommodation in England, Scotland, and Wales, with a view to the solution of the housing problem on a national basis; whether an inventory would be made of all slums and insanitary dwellings unfit for human habitation; and whether he could state when this necessary task of national reconstruction would be undertaken.—Mr. LLOYD GEORGE replied: A survey of housing conditions was made by local authorities as recently as 1919, and although I do not think that the general results can be taken as a measure of the effective demand for additional houses at the present time, the individual surveys contain a great deal of valuable information in regard to areas needing consideration from a sanitary point of view, which is serving as a basis for action. It is, moreover, the duty of local authorities to carry out inspection of dwelling-houses in their districts and a great deal of work is being done by local authorities in dealing with unsatisfactory houses. The Government have promised a contribution towards the annual losses incurred by local authorities in dealing with slum areas, and many local authorities have schemes in preparation or progress.

MONDAY, JULY 17TH.

Appeals from Medical Boards.

Lieut.-Colonel Sir FREDERICK HALL asked the Minister of Pensions whether officers and men whose cases come before a medical appeal board were now entitled to appeal from the decision of such board to another tribunal; and, if so, would he state why this fact was suppressed in Form M.P.O. 617 issued by the Ministry of Pensions to those who appealed against a decision of a medical board.—Major TRYON replied: My hon. and gallant friend appears to be under a misapprehension as to the respective functions of the Medical Appeal Board and Assessment Appeal Tribunals. The Assessment Appeal Tribunals, which were constituted under Section 4 of the War Pensions Act, 1921, deal only with appeals against a decision of the Minister that the award made in a given case is final. The Medical Appeal Boards deal with appeals against the assessments made by other medical boards of the Ministry. They decide matters of assessment only, and do not pronounce as to the finality of the awards. There would consequently be no ground of appeal directly from the Medical Appeal Board to the Appeal Tribunal. I may point out, however, that when the

finding of a medical board is made final by the Minister, the pensioner is so notified and is at the same time informed fully of his right of appeal to the tribunal.

Free Meals for School-children.

Mr. LEONARD LYLE asked the President of the Board of Education if, taking the 50 largest towns in the country, he could give the amount spent by each education committee on free school meals; and whether, in each case, he would state the amount per head of the population which the total represented.—Mr. HERBERT LEWIS (Under-Secretary to the Board of Education) replied: The latest available statistics relating to the Provision of Meals by Local Education Authorities are given in Appendix A of the Board's Circular 1261, of which I am sending a copy to the hon. Member. My right hon. friend thinks that this Appendix will give him what he requires, though not in the exact form in which he has asked for it, and my right hon. friend thinks he will agree with him that the school population, as shown by the average attendance, is a better index figure than the whole population.

TUESDAY, JULY 18TH.

War Pensions Act and Final Awards.

Sir DOUGLAS NEWTON asked the Minister of Pensions what action had been taken to carry into effect the provisions of the War Pensions Act, 1921, for the making of final awards; and whether he had received any and, if so, how many appeals in respect of final awards which had so far been made.—Major TRYON replied: Regulations to give effect to the provisions of the War Pensions Act, 1921, for the making of final awards were issued in January last, and have since been in active operation. The latest figures available show that 8500 appeals against final awards have been received, and these are being dealt with as rapidly as possible by the Ministry and by the independent Assessment Appeal Tribunals set up under the War Pensions Act of last year.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, Balham.
WEDNESDAY, July 26th.—4.30 P.M., Mr. H. Barr Grimsdale: Common Errors in Diagnosis in Regard to the Eyes.

MANCHESTER FRENCH HOSPITAL, 24, Acomb-street, Whitworth Park.
THURSDAY, July 27th.—4.30 P.M., Dr. N. C. Haring: The Influence of Heredity in Tuberculosis.

Appointments.

ARCHDALE, M. A., M.B., B.S. Durh., has been appointed Medical Superintendent, Sunderland Borough Mental Hospital.

GROVES, E. W. HEY, M.S., F.R.C.S., Professor of Clinical Surgery, University of Bristol.

LEAKE, W. H., M.B., Ch.B. Leeds, Resident Aural Officer, General Infirmary, Leeds.

Queen's Hospital for Children, Hackney-road, E.: PRITCHARD, E., M.D., B.Ch. Oxon., M.R.C.P. Lond., Consulting Physician; BROSTER, L. R., M.B., B.Ch. Oxon., Assistant Surgeon.

Vacancies.

For further information refer to the advertisement columns.

Aberdeen University.—Lecturer in Bacteriology. £600.
Aylesbury, Royal Buckinghamshire Hospital.—Res. M.O. £200.
Barrow-in-Furness County Borough.—Asst. M.O.H. and Asst. Tuberc. O. £600.
Benenden, Kent, National Sanatorium.—A.M.O. £250.
Birmingham, Rubery Hill and Hollymoor Mental Hospital.—Two Jun. Asst. M.O.'s. £350 each.
Birmingham University.—Professor of Pathology. £1000.
Bournemouth, Royal Victoria and West Hants Hospital.—Hon. Asst. S. and Hon. Anæsth.
Bradford City.—Asst. M.O. £500.
Bristol, Ham Green Isolation Hospital and Sanatorium.—A.R.M.O. £300.
Bury Infirmary.—Jun. H.S. £150.
Cambridge, Addenbrooke's Hospital.—H.S. £130.
Cancer Hospital, Fulham-road.—H.S. £130.
City of London Hospital for Diseases of the Chest, Victoria Park, E.—P.
Derby County Borough.—Maternity and Child Welfare M.O. £500.
Dundee District Asylum.—Asst. M.O. £293.
Exeter, Royal Devon and Exeter Hospital.—A.H.S. £150.
Exminster, Devon Mental Hospital.—Third Asst. M.O. £300.
Gloucestershire Royal Infirmary.—Asst. H.S. £150.
Herefordshire County Council.—Asst. Tuberc. O., &c. £500.
Hospital for Women, Soho-square.—Res. M.O. £100.
Hospital of St. John and St. Elizabeth, 40, Grove End-road, N.W.—Res. M.O. £150.
Huddersfield Royal Infirmary.—Sen. H.S. £250.
Hull Royal Infirmary.—Asst. H.S. £150.
Liverpool Royal Children's Hospital.—Two Res. H.P.'s and two Res. H.S.'s. Each £90.
London Temperance Hospital, Hampstead-road.—Asst. Res. M.O. £120.
Manchester, Ancoats Hospital.—H.S. £150. Hon. Radiologist.
Manchester Hospital for Consumption.—Res. M.O. £350.
Manchester, Hulme Dispensary.—Res. M.O. £350.
Manchester Royal Eye Hospital.—Jun. H.S. £120.
Manchester Royal Infirmary.—Res. M.O. £200.
Manchester, St. Mary's Hospitals for Women and Children.—Asst. M.O. £100.
Miller General Hospital for South East London, Greenwich-road, S.E.—Sen. Res. M.O. £350.
National Hospital for Diseases of the Heart, Westmoreland-street, W.—Res. M.O. £150.
Nottingham General Hospital.—Res. Cas. O. £250.
Oldham County Borough.—Asst. M.O.H. £350.
Oxford County and City Mental Hospital.—Second Asst. M.O. £350.
Portsmouth Royal Hospital.—H.S. £150.
Queen Mary's Hospital for the East End, Stratford.—Hon. M.O.
Salford Royal Hospital.—Asst. M.O. (part-time). £75.
Salisbury General Infirmary.—H.S. £200.
Sheffield Royal Infirmary.—Ophth. H.S. £150.
South Eastern Hospital for Children, Sydenham, S.E.—Res. M.O. £100.
Staffordshire General Infirmary, Stafford.—H.S. £200.
Stoke-on-Trent, North Staffordshire Infirmary, Hartshill.—H.S. £200.
Swansea General and Eye Hospital.—H.P. £200.
West Bromwich and District Hospital.—Res. Asst. H.S. £180.
Wigan Education Committee.—Asst. Sch. M.O. £500.
York County Hospital.—Third Res. O. £150.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Glastonbury, Hyde, and Smethwick.

Births, Marriages, and Deaths.

BIRTHS.

ASH.—On July 13th, at Crowborough House, Crowborough, the wife of R. Guy Ash, L.D.S.R.C.S. Eng., of a daughter.

FRANKLIN.—On July 10th, at Streatham, the wife of Lieut.-Colonel G. D. Franklin, I.M.S., of a son.

GWYNN.—On June 21st, at Malta, the wife of Lieut.-Colonel W. P. Gwynn, C.M.G., R.A.M.C., of a daughter.

PAYNE.—On July 11th, at The Willows, Lavenham, Suffolk, the wife of Dr. R. W. Payne, of a son.

PRENTICE.—On July 9th, at Seacliffe, Kingsgate, Kent, the wife of H. Ridley Prentice, M.B., M.R.C.P., of twin sons.

RIDDOCH.—On July 10th, at Park-square West, Portland-place, the wife of Dr. George Riddoch, of a son.

SCOTT.—On July 15th, at Garswood Park-crescent, Southport, the wife of G. Claude Scott, M.D., of a son.

MARRIAGES.

ALFORD—PRING.—On July 11th, at the Parish Church of North Curry, Somerset, Cyril Wolrige Alford, M.D. Lond., to Dorothea Mary, only daughter of the Rev. D. J. Pring, Vicar of North Curry and Rural Dean of Taunton.

GRAHAM—BARRON.—On July 13th, at St. Jude's, Southsea, Captain William Thomson Graham, O.B.E., R.A.M.C., to Olive Beatrice, eldest daughter of Mr. and Mrs. Barron, Westfield, Shirley-road, Southampton.

PERRY—DAYRELL PALMER.—On July 11th, at Merrow Parish Church, Alan Cecil Perry, B.S., F.R.C.S., to May Alice, daughter of the late Captain Charles Palmer, R.N., China.

WALKER—HUMPHREYS.—On July 10th, at St. Andrew's Church, Wraysbury, Captain Herbert Walker, M.C., R.A.M.C., to Dorothy, youngest daughter of the late F. L. Humphreys, of Montevideo, Uruguay, South America, and Mrs. Humphreys.

YOUNG—VINSON.—On Monday, July 17th, 1922, at St. Stephen's, Walbrook, by the Rev. R. S. de C. Laffan, Graham Salter Young, son of John Young, Esq., M.D., Burfords, Bishop's Stortford, to Nora Eveline Vinson, widow of the late Captain A. H. Vinson, R.F.C., of Belvedere, Kent.

DEATHS.

DODSWORTH.—On July 15th, at St. Leonards, Frederick Charles Dodsworth, M.R.C.S., L.R.C.P. (late of Chiswick), in his 88th year.

STIELL.—On July 15th, at 54, Elms-road, Clapham, S.W., Gavin Stiell, M.D., aged 65 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

HEREDITY IN THE SERVICES.[1]

(ARMY EXAMINATION CANDIDATES.)

By S. S. BRAMWELL.

Francis Galton published "Hereditary Genius" in 1869, ten years after the appearance of his cousin's "Origin of Species." He says in his opening sentence, "I propose to show in this book that a man's natural abilities are derived by inheritance, under exactly the same limitations as are the form and physical features of the whole organic world." Galton found that about half the great men of England had near relatives who were also distinguished. The same has been found in the States, where it is said that 1 per cent. of the population—namely, certain intellectual families—produce 50 per cent. of the men of genius.

We all recognise that races have aptitudes. The Japanese are artistic, the Chinese industrious, the Italians musical, and the Negroes stupid. Even in our own island the men from Wales and the Welsh border gravitate into the Church, law, and the drapery trade, while the Anglo-Danish stock of the north-east prefer medicine, the army, and the butcher's shop. Leaving race, family aptitudes are well known. To mention a few instances: the family of Kennedy produced four Senior Classics and other high scholars at Cambridge in two generations; the 15 grandsons of a Rev. Mr. Alderson included two Senior Wranglers, one of whom became a judge and the other a professor of astronomy; and a third a Wrangler who became President of the Royal College of Physicians of London. The late Master of Trinity College, Cambridge, Dr. Butler, was a Senior Classic; his father was Senior Wrangler, and his son was First Chancellor's Medallist for classical learning. A Darwin of the fifth successive generation has recently been elected to the Fellowship of the Royal Society. And so in other lines—in music the Bachs, on the stage the Kembles and the Terrys, in the law the Pollocks in England and the Dundases in Scotland. Galton gives us a long list of instances from the great commanders of history suggesting that an aptitude for the profession of arms runs in families.

I recently made an inquiry into various points in connexion with boys entering the army from Cheltenham between the years 1880–1906. The total number of boys was 1010; of these 114 became sappers, 228 became gunners (through Woolwich), 158 became Indian officers (through Sandhurst), 285 got commissions in the British army through Sandhurst, and 225 got commissions through the militia. The Indian officer class is in many respects anomalous, but the other four classes are presumably meant by the authorities to be graded according to their intelligence.

I found the following percentages of "distinguished" fathers: For sappers, 39 per cent.; for gunners, 28 per cent.; for Indian officers, 32 per cent.; for Sandhurst officers, 19 per cent.; for militia officers, 14 per cent. I also found that the ability of the brothers taken in bulk is correlated to the classes under consideration. Education has been likened to the development of an exposed photographic plate. It is dependent on natural ability, the more the ability the more efficacious education, and vice-versa. And ability is, as we have seen, largely a matter of inheritance.

There are a few other points which we might consider. Who make the best soldiers, the sons of soldiers or the sons of civilians? On the whole, the soldiers' sons did rather better in examinations. The figure for the average boy was 2·86. For the sons of civilians it was 2·56. Differentiating still further, the sons of naval officers did best. Their average figure was 3·66, that for gunners' sons was 3·44, sappers' sons, curiously enough, averaged rather lower at 3·31, while other officers' sons only averaged 2·61. Amongst civilians, the best average was for sons of Indian Civil servants 3·62, then came Civil engineers, 3·46. Considerably lower came doctors, barristers, solicitors, parsons, and lastly those where the father is not mentioned as following any pursuit. If we regard the other side, the performance of manhood, and exclude the Indian army, we again find that the sons of the services do slightly better. The average figure for mentions, &c., is in their case 2·3, in that of the sons of civilians it is 2·17. The sons of naval officers again did best with a figure of 3·42, then came the sons of sappers with a figure of 3·28. Amongst civilians, the sons of doctors did best with a figure of 2·77. We may take it, then, that the sons of members of the services make rather better soldiers than the sons of civilian professional men, but if one cannot be both, it is more advantageous to be a member of an able family than of a fighting family.

[1] Abstracted from a paper read at the Royal Institute of Public Health Congress, held at Plymouth May 31st to June 5th, 1922.

INDIAN OFFICIAL MEDICAL REPORTS.

I.—PUBLIC HEALTH PROGRESS IN BENGAL.

THE report on the administration of local government in the Municipalities of Bengal during 1919 and 1920[1] indicates that, as regards the public health, progress is being made, though not as rapidly as could be wished. Many municipalities took steps to improve sanitation by filling up, or clearing out, insanitary tanks and ditches, and removing jungle. Free vaccination was introduced in some places, quinine distributed, lantern lectures on hygiene delivered by sanitary inspectors; and at Darjiling a special hospital and several dispensaries were opened to fight the influenza epidemic. In the 24-Parganas district of the Presidency division the magistrate reported that "the average ratepayer still prefers low rates and a correspondingly low standard of administration to enhanced taxation and improved modern methods. But in view of the great rise in the cost of living this is not to be wondered at." In the Rajshahi division the Commissioner reports that Darjiling "stands by itself as the only municipality which maintains a modern standard of administration: Kurseong is a progressive municipality which has carried out improvements as far as its income permits, and wishes to undertake a comprehensive scheme for the development of the town if funds can be obtained."

The District Boards.

The report on working of the District Boards[2] in the same province (1919–20) commences by stating that "it is recognised that, in the present stage of local self-government in Bengal, political education is a paramount consideration to which administrative efficiency must give place. In pursuance of this policy steps have been taken to remove district boards from official tutelage." It would not perhaps be generally admitted that children should be allowed, or instructed, to run before they can walk; neither is it the method of Nature to advance *per saltum*. The decision must, however, rest with the authority on the spot, which alone is capable of coming to a conclusion based on actual experience of the existing conditions. In the words of the report: "To them is entrusted the conduct of communal affairs in the villages, from which the public life of the community starts. It is on the foundation of their organisation, their successful work, and their realisation of the fact that they themselves are responsible to their fellow villagers that the imposing structure of responsible self-government in Bengal must rest." The Village Self-Government Act came into force on May 28th, 1919; the number of "Union Boards" is now more than 1700. There were 282 dispensaries entirely maintained by the District Boards, as well as 221 receiving grants in aid; the districts in Chittagong Division did not maintain any dispensaries. The main problem of the District Boards is one of finance. They are faced with constantly increasing demands for a standard of administration based on modern ideas. The necessity for increasing their income is apparent, and this matter will be considered in connexion with that of the amendment of the Bengal Local Self-Government Act.

Industrial Activity.

The progress of industrial activity in Bengal, Bihar and Orissa, and Assam, is indicated by the fact that in 1920 there were 773 factories in operation in these provinces, compared with 704 in 1919; 85 having been brought on the register and 16 closed down. The average daily number of operatives employed was 524,508, compared with 502,602 in the two years respectively. There is a continued improvement in the sanitary arrangements for the workers, septic tank installations having been provided in eight factories and two docks, and seven other installations being under construction. There has been some difficulty as regards water-supply for drinking in districts south of Calcutta, the river water, which is more or less brackish, not being satisfactorily dealt with by the filters; but during recent years a large number of deep wells have been sunk, penetrating the lower clay beds, with good results. The general health of the operatives throughout the three provinces has been good; every year additional coolie lines are being constructed.

The number of accidents increased from 2058 (0·41 per cent. of the workers) in 1919 to 2376 (0·45 per cent.) in 1920; but was relatively less than in the three years preceding, when the ratios had been 0·48, 0·49, and 0·48 respectively. Many cases of dangerous machinery, not properly fenced, have come to notice, and on account of insufficient inspection staff (over 400 factories had to be left uninspected during the year) the position in regard to this matter is unsatisfactory. In Bihar and Orissa the percentage of accidents to employés was 1·66, lower than in the four years preceding, but much above the figures for Bengal (0·31) and Assam (0·21). At the Tata Iron and Steel Works the percentage of

[1] Bengal Secretariat Book Depôt, August, 1921.
[2] Bengal Secretariat Book Depôt, July, 1921.

employés injured was as high as 2·62, representing 651 cases. Mr. R. P. Adams, who presents this report[3] (the Chief Inspector of Factories for these provinces), states that many of these accidents "could undoubtedly have been prevented with the exercise of proper supervision and necessary precautions. . . . These works are threaded with a perfect network of railway lines, and workers are allowed to cross these lines in all directions." There has been unrest among the labouring classes in most of the large industrial areas in these provinces, and practically all industries have been affected by strikes, for higher wages to meet increased cost of living; in most cases the wages were raised, and the standard is now at least 50 per cent. above pre-war rates. Trade has been active, and the established industries are rapidly expanding, especially in the direction of engineering works; of these 28 new concerns were registered in 1920, as well as large extensions to old works, there being an increase of about 8000 in the number employed. There are now nearly 800 factories on the register, compared with 364 in 1912, when the new Factories Act was introduced. An increase of inspecting staff is obviously and urgently required; three appointments have been sanctioned, but the salary offered was insufficient to attract men with the necessary qualifications. It is to be hoped that, since the issue of this report, the needful provision has been made.

Asylum Administration.

In the various lunatic asylums in Bengal the "mean strength" of the inmates for the triennial period, 1918–20, was 1014, as compared with 1081 in the preceding triennium, 1915–17; the decrease was due to transfer in 1918 of patients to the Central Asylum that has been opened for Europeans and Anglo-Indians at Ranchi, in Chota Nagpur. There are now only three regular asylums in the Presidency, with an observation ward, which has taken the place of the asylum at Bhawanipur. The existing accommodation suffices for 1099 inmates (giving a floor space of 50 square feet to each), of whom 764 are at Berhampore and 319 at Dacca. The admissions averaged 286 yearly, compared with 256 in the preceding triennium, the increase being chiefly due to the large number of military cases (74) in 1918. The recoveries in the three years numbered 335, in addition to whom 86 patients were discharged in an improved state. The chief types of insanity treated were mania, melancholia, and insanity caused by *Cannabis indica* or its derivatives, for which 88, 80, and 33 lunatics were admitted on an average annually, or 30·77, 27·97, and 11·54 per cent. of the total admissions. As regards ætiology, while inheritance caused 7·99 per cent. of the average annual admissions for the triennium, mental instability 6·99 per cent., and mental stress 14·63 per cent., no less than 22·56 per cent. are ascribed to the use of intoxicants, chiefly ganja (*Cannabis indica*). The bodily health of the inmates is said to have been not satisfactory during the triennium, influenza and dysentery having been prevalent: ratios of incidence and mortality are not stated. The total mortality for the triennium averaged 100·7 per 1000, compared with 89·5 for the preceding triennial period; it increased from 96·3 in 1918 to 100·3 in 1919 and 105·5 in 1920. At Berhampore and Dacca asylums 485 inmates were (on an average) employed in useful and profitable industries, such as carpentry, weaving, dairy-farming, baking, &c.; patients are rewarded for good work and good conduct. At Berhampore articles to the value of Rs.20,852 were made by inmates for asylum use, and other articles were sold to the value of Rs.7327; these figures are averages for *each* year of the triennial period. At Dacca the corresponding amounts were Rs.5599 and Rs.330. The average annual profits were Rs.9025 and Rs.5382 for the two institutions respectively. In addition, the respective dairies made average annual profits of Rs.1210 and Rs.330. The dietary and hygienic arrangements were all that could be desired, and every effort was made to render the inmates contented and happy, periodical treats at the festivals, distribution of books, tobacco, &c., and provision of a harmonium and a gramophone. Both at Berhampore and at Dacca certain funds are provided for the amusement of the inmates; at Dacca this expenditure is met by private subscriptions, to which the Nawab contributes generously. Surgeon-General F. O'Kinealy, C.I.E., I.M.S., officiating Surgeon-General, Bengal, who presents this report,[4] gives great credit to the various officers and subordinate staff concerned in the care and control of the various institutions during the period under review.

[3] On the Working of the Indian Factories Act in Bengal, Bihar and Orissa, and Assam. 1920. Bengal Secretariat Book Depôt, April, 1921.

[4] Triennial Report on the Lunatic Asylums in Bengal, 1918–20. Bengal Secretariat Book Depôt, June, 1921.

AMADOU.

WE have received from W. Wood Milne, of 61, Cathedral-street, Glasgow, a specimen of amadou, a soft, tough substance derived from the fungus *Polyporus fomentaria*. This material is highly absorbent and for that reason is sometimes used in dentistry for drying out cavities in teeth during the process of filling them. The specimen we have received is soft and of good absorbing properties and should be very suitable for this purpose. There is another use for amadou which may interest those of our readers who happen to be anglers. We know of nothing so good as a sheet of amadou for absorbing the moisture from a dry fly which has become saturated. Many dentists who are fishermen have learned its value for this purpose and would not be without a piece in their tackle box.

THE MALARIA MOSQUITO.

To the Editor of THE LANCET.

SIR,—I found the following anonymous trifle among my old papers the other day. You may possibly deem it worth publishing:—

He lurks among the reeds, beside the marsh,
Red oleanders twisted in his hair,
His eyes are haggard and his lips are harsh,
Upon his breast the bones show gaunt and bare.
The green and stagnant waters lick his feet
And from their filmy iridescent scum,
Clouds of mosquitoes, gauzy in the heat,
Rise with his gifts: Death and Delirium.
His messengers: they bear the deadly taint
On spangled wings aloft and far away,
Making thin music, strident and yet faint,
From golden eve to silver break of day.

I am, Sir, yours faithfully,

P. HEHIR,
Major-General, I.M.S.

Westward Ho! North Devon, July 17th, 1922.

MODIFICATIONS IN THE TRAINING OF HEALTH VISITORS.

IN order to facilitate the training of nurses as health visitors, the Board of Education, after consultation with the Ministry of Health, announce that they will be prepared to approve whole or part-time courses of *less* than one year's duration at recognised institutions for trained nurses who have had a three years' course of general hospital training or a full course of training at a children's hospital. These shortened courses will be open to women who have been acting for three years as health visitors in the service of local authorities. The requirements of the Ministry apply only to salaried health visitors. Unpaid workers should be experienced and competent, but in view of the limitation of their functions they need not necessarily possess certificates. Local authorities who have a vacancy in the office of paid health visitor are expected to give preference to women with the certificate prescribed by the Board of Education. Women without this certificate should have had three years' training in a general hospital, or full training in a children's hospital, together with at least one of the following qualifications: (*a*) the certificate of the Central Midwives Board; (*b*) the certificate of a sanitary inspector; (*c*) the certificate for health visitors of the Royal Sanitary Institute, the Royal Institute of Public Health, the National Health Society, or the Battersea Polytechnic. In special cases women with previous experience of the duties may at present be appointed without these certificates. Various other suggestions for the regulations of the duties of health visitors are included in a leaflet (65 M.C.W.) issued at 1*d.* by H.M. Stationery Office.

THE "DAILY EXPRESS" WOMAN'S EXHIBITION.

THERE are many exhibits of medical interest at this exhibition, now being held at Olympia, London, W. The London (R.F.H.) School of Medicine for Women has a series of stalls demonstrating the whole course of medical studies. Whether these will inspire enthusiasm or terror in the would-be medical student remains to be seen, for the course looks much more formidable thus represented than it does on a prospectus; it is an excellently arranged and most imposing exhibit. That of the College of Nursing and the Association of Hospital Matrons is no less interesting, and it is to be hoped that it will stimulate inquiry among those members of the nursing profession who have not yet realised the advantages of belonging to the College, which was founded in 1916 with the sole object of advancing their interests. The Gordon School of Pharmacy for Women have a stall where practical demonstrations of the work done by pharmacists in training are given. There are many other exhibits of direct and indirect medical import. The Home Radiant Light Bath Frame (Anglo-Canadian Trading Corporation, Ltd., Palace Chambers, 9, Bridge-street, Westminster, London, S.W.) shown in the domestic section, seems a convenient way for patients to take these baths in their own homes. In the infants' section the Treasure Cot Co., Ltd. (103, Oxford-street, London, W.), has an attractive stall.

The exhibition has been designed to show the varied activities of the modern woman as home-maker, worker, citizen, and has succeeded admirably in this aim. It is well worth a visit.